

TOP
LISTINGS
FOR THE
SPECTRUM AND ZX-91

July 1984

An independent magazine published by ECC Publications

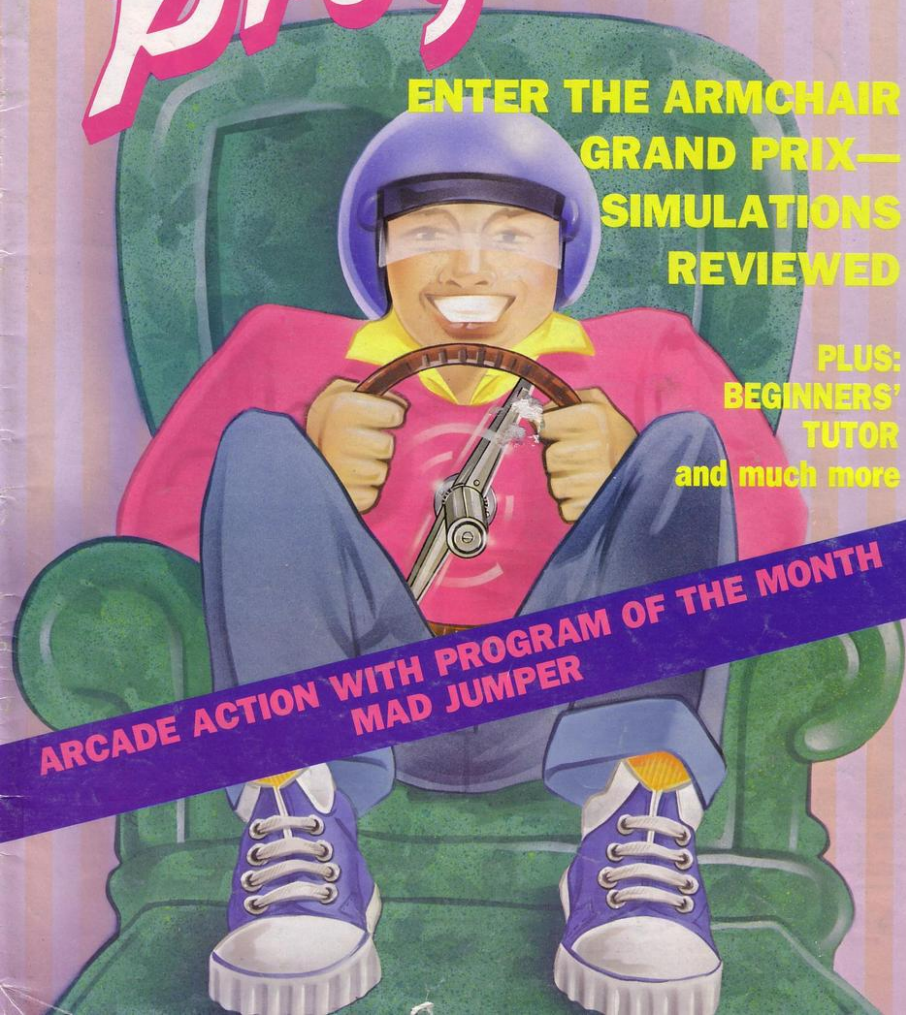
95p

Sinclair Programs

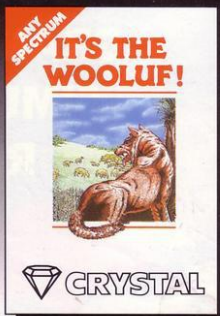
ENTER THE ARMCHAIR
GRAND PRIX—
SIMULATIONS
REVIEWED

PLUS:
BEGINNERS'
TUTOR
and much more

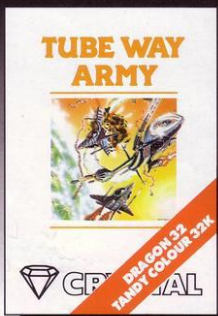
ARCADE ACTION WITH PROGRAM OF THE MONTH
MAD JUMPER



TWO NEW RELEASES FROM CRYSTAL IT'S THE WOOLUF! TUBE WAY ARMY



Written by: Martin Buller



Written by: Rainbow Software

From the creators of 'Halls of the Things,' 'Invasion of the body snatchas,' and many other software classics come these exciting new games.

Games to tax your judgement and puzzle and frustrate you for months on end.

Don't forget our other titles, which have attracted enthusiastic reviews like

"Spectacular, one of the best games I've seen" ... POPULAR COMPUTING WEEKLY and
"Excellent, dangerously addictive, could change the Spectrum games scene overnight" ... SINCLAIR USER.



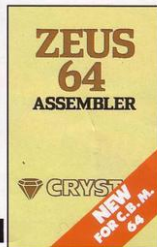
HALLS OF THE THINGS

Written by: Neil Mottershead,
Simon Brattel and
Martin Horsley



INVASION OF THE BODY SNATCHAS

Written by: Simon Brattel
and Neil Mottershead



Written by:
Graham Stafford



ROMMELS REVENGE

Written by: Martin Horsley



THE DUNGEON MASTER

Written by: Graham Stafford

**COMING SOON
RETURN OF THE THINGS**

All titles for 48K Spectrum unless otherwise stated

Selected titles available from:-



John Menzies

HMV WOOLWORTH

other large department stores and all good major software retailers. Alternatively, send the coupon to:-



CRYSTAL

CRYSTAL COMPUTING, 2 ASHTON WAY,
EAST HERRINGTON, SUNDERLAND SR3 3RX.
TRADE ENQUIRIES WELCOME:- Tel: 061-205 6603.

CRYSTAL COMPUTING IS THE TRADING NAME OF CHANDREX LTD.
The name Crystal is used under license

PROGRAMMERS! WRITTEN ANY SOFTWARE THAT COMES UP TO OUR STANDARDS? IF SO SEND IT TO US FOR EVALUATION. WE OFFER GENEROUS ROYALTIES.

Please supply:

INVASION OF THE BODY SNATCHAS	£6.50
HALLS OF THE THINGS	£7.50
IT'S THE WOOLUF	£6.50
TUBE WAY ARMY	£7.50
ROMMELS REVENGE	£6.50
THE DUNGEON MASTER	£7.50
ZEUS 64	£9.95

CATALOGUE OF LATEST SOFTWARE ☐

NAME

ADDRESS

I enclose cheque/p.o. for
P & P included. Overseas orders, please add £1.50 per item.

Editor

Rebecca Ferguson

Consultant editor

John Campbell

Managing production editor

Harold Mayes MBE

Staff writer

June Mortimer

Design

Elaine Bishop

Group advertisement manager

Holly Fleming

Production assistant

Dezi Epaminondou

Editorial assistant

Colette McDermott

Managing editor

Nigel Clark

Managing director

Terry Cartwright

Assistant managing director

Barry Hazel

Chairman

Richard Hease

U.S. Press representative: J Eisenberg,
JE Publishers' representative, 6855 Santa
Monica Blvd, Suite 202, Los Angeles, CA
90038.

Sinclair Programs is published
monthly by ECC Publications Ltd.

Telephone 01-359 3525

If you would like your original programs to
be published in Sinclair Programs, please
send your contributions, which must not
have appeared elsewhere, to:

Sinclair Programs,
ECC Publications,
196-200 Balls Pond Road,
London N1 4AQ

Programs should be on cassette. We cannot
undertake to return them unless a stamped-
addressed envelope is included. We pay
£10 for the copyright of each program
published.

© Copyright 1984 Sinclair Programs
ISSN No 0263-0265

Printed and typeset by Cradley Print PLC,
Warley, West Midlands

Distributed by Spotlight Magazine
Distribution Ltd, 1 Benwell Road,
Holloway, London N7. 01-607 6411

Cover Design—Ivan Hissey

Contents

GRAPHICS	3	PROGRAM TUTOR	28
INSTRUCTIONS		SOFT THEME	30
LETTERS	27	SOFT FOCUS	32

Zx81

TREASURE QUEST	5	LOAD STONES	36
FUTURE WAR	9	SWIMMING GALA	39
SATELLITE		CONVEYOR BELT	40
COLLECTION	12	POWER CRYSTAL	42
SNOOKER	23	BALLOON BURST	50
TEST PILOT	24	QUICK DRAW	56

Beginners

SPECTRUM		ZX-81	
HUNT SABOTEURS	15	SAFARI	16
BEGINNER TUTOR		QUICKSAND	16
LADDER ATTACK	17	SHOOTING GALLERY	17

Spectrum

PROGRAM OF THE		THINK OF A NUMBER	21
MONTH		PEARL DIVER	35
MAD JUMPER	6	DINOSAUR MUNCHER	38
TRAIN JUMP	10	CRABS	41
ROMAN SQUASH	13	LONDON RAID	47
ALONG THE WIRE	14	DALEK RAID	48
DETECTIVE	19	GRID BATTLE	54
CASH		CHIRPER	55
ACCUMULATOR	20		

Instructions for graphics characters are printed in lower-case letters in our listings. They are enclosed by brackets and separated by colons to distinguish them and the brackets and colons should not be entered.

Inverse characters are represented by the letter "i" and graphics characters by "g". Thus an inverse W would be represented by "iw", a graphics W by "gw", and an inverse graphics W by "igw".

Spaces are represented by "sp" and inverse spaces by "isp". Whenever any character is to be used more than once, the number of times it is to be used is shown before it, together with a multiplication sign. Thus "6*isp" means six inverse spaces and "(g4:4*id:g3)" would be entered as a graphic four, followed by an inverse four repeated four times, followed by a graphics three.

Where whole words are to be written in inverse letters they appear in the listings as lower-case letters. Letters to be entered in graphics mode on the Spectrum are underlined.

Inverse characters may be entered on the ZX-81 by changing to graphics mode and then typing the appropriate characters and on the Spectrum by changing to inverse video and typing the appropriate letters. Graphics characters may be entered on the ZX-81 by changing to graphics mode and then pressing symbol shift while the appropriate characters are entered. On the Spectrum graphics characters may be obtained by changing to graphics mode and then pressing the appropriate character. User-defined graphics will appear as normal letters until the program has been RUN.

All for just £64.95.

218 High Street, Potters Bar, Herts EN6 5JS Potters Bar Tel: (0707) 44063

[illegible]

SINCLAIR PROGRAMS July 1984



ENTER the co-ordinates of the position in which you think the treasure lies. The chest is shown on the map to make it easier for you. If you are correct you receive five points but five points will be deducted for an incorrect guess. You must score 50 points for a successful quest and if your score falls below zero you will fail.

Treasure Quest was written for the 16K ZX-81 by Kenneth Moore, aged 13, of Glasgow.

TREASURE QUEST

```

1 LET SC=25
10 PRINT AT 5,23;"SCORE=";SC
13 PRINT AT 7,22;"TREASURE"
15 PRINT AT 8,22;"ISLAND"
20 FOR F=1 TO 20
30 PRINT AT F,0;"I"
40 NEXT F
50 FOR N=1 TO 20
60 PRINT AT 20,N;"-"
70 NEXT N
80 FOR N=1 TO 20
90 PRINT AT 0,N;"-"
100 NEXT N
110 FOR F=1 TO 20
120 PRINT AT F,20;"I"
130 NEXT F
140 PRINT AT 3,5;" "
150 PRINT AT 4,5;" "
160 PRINT AT 5,5;" "
170 PRINT AT 6,5;" "
180 PRINT AT 7,5;" "
190 PRINT AT 8,5;" "
200 PRINT AT 9,5;" "
210 PRINT AT 10,5;" "
220 PRINT AT 11,10;" "
230 PRINT AT 12,10;" "
240 PRINT AT 13,10;" "
250 PRINT AT 14,10;" "
260 PRINT AT 15,10;" "
270 PRINT AT 16,10;" "
280 PRINT AT 17,10;" "
290 PRINT AT 18,10;" "
300 PRINT AT 19,10;" "
310 PRINT AT 20,10;" "
320 PRINT AT 0,10;" "
330 PRINT AT 1,10;" "
340 PRINT AT 2,10;" "
350 PRINT AT 3,10;" "
360 PRINT AT 4,10;" "
370 PRINT AT 5,10;" "
380 PRINT AT 6,10;" "
390 PRINT AT 7,10;" "
400 PRINT AT 8,10;" "
410 PRINT AT 9,10;" "
420 PRINT AT 10,10;" "
430 PRINT AT 11,10;" "
440 PRINT AT 12,10;" "
450 PRINT AT 13,10;" "
460 PRINT AT 14,10;" "
470 PRINT AT 15,10;" "
480 PRINT AT 16,10;" "
490 PRINT AT 17,10;" "
500 PRINT AT 18,10;" "
510 PRINT AT 19,10;" "
520 PRINT AT 20,10;" "
530 PRINT AT 0,10;" "
540 PRINT AT 1,10;" "
550 PRINT AT 2,10;" "
560 PRINT AT 3,10;" "
570 PRINT AT 4,10;" "
580 PRINT AT 5,10;" "
590 PRINT AT 6,10;" "
600 PRINT AT 7,10;" "
610 PRINT AT 8,10;" "
620 PRINT AT 9,10;" "
630 PRINT AT 10,10;" "
640 PRINT AT 11,10;" "
650 PRINT AT 12,10;" "
660 PRINT AT 13,10;" "
670 PRINT AT 14,10;" "
680 PRINT AT 15,10;" "
690 PRINT AT 16,10;" "
700 PRINT AT 17,10;" "
710 PRINT AT 18,10;" "
720 PRINT AT 19,10;" "
730 PRINT AT 20,10;" "
740 PRINT AT 0,10;" "
750 PRINT AT 1,10;" "
760 PRINT AT 2,10;" "
770 PRINT AT 3,10;" "
780 PRINT AT 4,10;" "
790 PRINT AT 5,10;" "
800 PRINT AT 6,10;" "
810 PRINT AT 7,10;" "
820 PRINT AT 8,10;" "
830 PRINT AT 9,10;" "
840 PRINT AT 10,10;" "
850 PRINT AT 11,10;" "
860 PRINT AT 12,10;" "
870 PRINT AT 13,10;" "
880 PRINT AT 14,10;" "
890 PRINT AT 15,10;" "
900 PRINT AT 16,10;" "
910 PRINT AT 17,10;" "
920 PRINT AT 18,10;" "
930 PRINT AT 19,10;" "
940 PRINT AT 20,10;" "
950 PRINT AT 0,10;" "
960 PRINT AT 1,10;" "
970 PRINT AT 2,10;" "
980 PRINT AT 3,10;" "
990 PRINT AT 4,10;" "
1000 PRINT AT 5,10;" "
1010 PRINT AT 6,10;" "
1020 PRINT AT 7,10;" "
1030 PRINT AT 8,10;" "
1040 PRINT AT 9,10;" "
1050 PRINT AT 10,10;" "
1060 PRINT AT 11,10;" "
1070 PRINT AT 12,10;" "
1080 PRINT AT 13,10;" "
1090 PRINT AT 14,10;" "
1100 PRINT AT 15,10;" "
1110 PRINT AT 16,10;" "
1120 PRINT AT 17,10;" "
1130 PRINT AT 18,10;" "
1140 PRINT AT 19,10;" "
1150 PRINT AT 20,10;" "
1160 PRINT AT 0,10;" "
1170 PRINT AT 1,10;" "
1180 PRINT AT 2,10;" "
1190 PRINT AT 3,10;" "
1200 PRINT AT 4,10;" "
1210 PRINT AT 5,10;" "
1220 PRINT AT 6,10;" "
1230 PRINT AT 7,10;" "
1240 PRINT AT 8,10;" "
1250 PRINT AT 9,10;" "
1260 PRINT AT 10,10;" "
1270 PRINT AT 11,10;" "
1280 PRINT AT 12,10;" "
1290 PRINT AT 13,10;" "
1300 PRINT AT 14,10;" "
1310 PRINT AT 15,10;" "
1320 PRINT AT 16,10;" "
1330 PRINT AT 17,10;" "
1340 PRINT AT 18,10;" "
1350 PRINT AT 19,10;" "
1360 PRINT AT 20,10;" "
1370 PRINT AT 0,10;" "
1380 PRINT AT 1,10;" "
1390 PRINT AT 2,10;" "
1400 PRINT AT 3,10;" "
1410 PRINT AT 4,10;" "
1420 PRINT AT 5,10;" "
1430 PRINT AT 6,10;" "
1440 PRINT AT 7,10;" "
1450 PRINT AT 8,10;" "
1460 PRINT AT 9,10;" "
1470 PRINT AT 10,10;" "
1480 PRINT AT 11,10;" "
1490 PRINT AT 12,10;" "
1500 PRINT AT 13,10;" "
1510 PRINT AT 14,10;" "
1520 PRINT AT 15,10;" "
1530 PRINT AT 16,10;" "
1540 PRINT AT 17,10;" "
1550 PRINT AT 18,10;" "
1560 PRINT AT 19,10;" "
1570 PRINT AT 20,10;" "
1580 PRINT AT 0,10;" "
1590 PRINT AT 1,10;" "
1600 PRINT AT 2,10;" "
1610 PRINT AT 3,10;" "
1620 PRINT AT 4,10;" "
1630 PRINT AT 5,10;" "
1640 PRINT AT 6,10;" "
1650 PRINT AT 7,10;" "
1660 PRINT AT 8,10;" "
1670 PRINT AT 9,10;" "
1680 PRINT AT 10,10;" "
1690 PRINT AT 11,10;" "
1700 PRINT AT 12,10;" "
1710 PRINT AT 13,10;" "
1720 PRINT AT 14,10;" "
1730 PRINT AT 15,10;" "
1740 PRINT AT 16,10;" "
1750 PRINT AT 17,10;" "
1760 PRINT AT 18,10;" "
1770 PRINT AT 19,10;" "
1780 PRINT AT 20,10;" "
1790 PRINT AT 0,10;" "
1800 PRINT AT 1,10;" "
1810 PRINT AT 2,10;" "
1820 PRINT AT 3,10;" "
1830 PRINT AT 4,10;" "
1840 PRINT AT 5,10;" "
1850 PRINT AT 6,10;" "
1860 PRINT AT 7,10;" "
1870 PRINT AT 8,10;" "
1880 PRINT AT 9,10;" "
1890 PRINT AT 10,10;" "
1900 PRINT AT 11,10;" "
1910 PRINT AT 12,10;" "
1920 PRINT AT 13,10;" "
1930 PRINT AT 14,10;" "
1940 PRINT AT 15,10;" "
1950 PRINT AT 16,10;" "
1960 PRINT AT 17,10;" "
1970 PRINT AT 18,10;" "
1980 PRINT AT 19,10;" "
1990 PRINT AT 20,10;" "

```

```

115 PRINT AT 0,15;"15"
117 PRINT AT 5,0;"5"
118 PRINT AT 10,0;"10"
119 PRINT AT 15,0;"15"
120 LET A=INT (RND*19)
125 LET B=INT (RND*19)
130 PRINT AT A,B;"*"
135 PRINT AT 21,0;"ENTER X CO-0
RDINATES"
140 INPUT X
145 PRINT AT 21,0;"ENTER Y CO-0
RDINATES"
150 INPUT Y
155 PRINT AT Y,X;"+"
160 IF Y=A AND X=B THEN PRINT A
T 21,0;"WELL DONE"
165 IF Y<>A OR X<>B THEN PRINT
AT 21,0;"HARD LUCK (TRY AGAIN)"
166 PAUSE 100
167 CLS
170 IF Y=A AND X=B THEN LET SC=
SC+5
175 IF Y<>A OR X<>B THEN LET SC
=SC-5
180 IF SC=50 THEN PRINT "WELL D
ONE YOU HAVE THE TREASURE"
183 IF SC=50 THEN STOP
185 IF SC=0 THEN PRINT "HARD LU
CK YOU HAVE NO TREASURE"
187 IF SC=0 THEN STOP
190 GOTO 10

```

MAD JUMPER

MAD JUMPER is a very addictive game in which you have to move along the walls collecting fruit you can reach only by jumping at it. Avoid the creature which follows you and watch your time limit. On reaching stage three the game becomes more difficult, as the ladders increase and the creature is able to fire at you if you are both on the same wall. Mind where you jump, as you knock off bricks when jumping and cannot land twice in the same place.

The program is in two parts to enable it to fit into the 16K Spectrum. Type-in the graphics program and SAVE it. Then type-in the main program and SAVE. Both programs can be SAVED by entering GOTO 9999. **Mad Jumper** was written by Henning Jon Grini of Bergen, Norway.

Never let it be said that it is impossible to write good games in Basic. After playing Mad Jumper for a time, it can be said that it is of commercial quality.

The object is to gain as many points as possible by collecting the fruit which is hanging from the roof. You do so by jumping about left to right or merely by moving in the mentioned directions. You can also go up and down ladders.

Things are not so easy, though, and the danger is the little monster which is constantly chasing you. Should you be touched, you lose a life.

It is one of those ladder types of game with five levels of playing area. If you jump and collect a piece of fruit, the ceiling, which is part of the floor above, disappears, and if you jump on to the weakened floor you will lose a life, so be careful where you jump.

Note that to avoid the monster, you can go off the screen left or right. Also there are ladders on the top and bottom levels which give a wraparound effect. So if you go up the top ladder, you will appear on the bottom.

You have only a certain amount of time to collect a fruit and that is displayed, together with your number of lives and the number of fruits to collect. After all the fruit has been collected for that stage, you move to the next where there will be more ladders and a laser base at each edge. Should the monster touch a base when you are on that level, a life is lost. It is possible to jump over the monster — good luck.



The program is in two parts. First, there is the start-up section which contains all the data for the user-defined graphics and machine code sound routines. Be very careful when entering this section, as some of the data is related to machine code; you could crash the machine if any of the numbers is incorrect. After the first part has been entered, save it to tape immediately.

Here is a very brief description of the main section. Line 100 sets up the main variables. Lines 370-377 are checks at higher stages of the game — stage three. Lines 393-400 are screen checks for the position of the monster and lines 400 to 409 read the keyboard and are part of a main loop — 370-420. Lines 500-1080 are checks on the screen position of the man and the routine is called only after he has been moved.

Lines 1115-1530 are a junction routine which caters for both left and right movement of the man — this is called from the keyboard entry routine. Lines 3100-3300 check and alter the time display and also alter the number of lives remaining. Lines 3500-3555 print the fruit but checks are made to see if the location is valid — i.e., is there a ladder there?

Lines 6004-6666 display the starting screen. The colour of MAD JUMPER and the line are changed at 6333 to 6666.

An interesting point about the program is that the data used to make up some of the UDGs is machine code. You can see the machine code in the game, as the explosion when a life is lost is made up of all the characters which are machine code.

MAIN ROUTINES

- 100 Sets up variables.
- 370-377 High-level routine.
- 393-400 Screen checks.
- 400-409 Read keyboard.
- 500-1080 Check man.
- 1115-1530 Check direction.
- 3100-3300 Print time.
- 3500-3555 Print fruit.
- 6004-6666 Display scores.
- 6888 Alternative coloured line as in score table.
- 8000-8100 Initial set-up routine.
- 8111-8166 Display playing area.
- 8177-8199 Start game tune.

VARIABLES USED

Arrays

- A () Holds top five scores.
- X\$ () Holds top five score names.

String

- C\$ Holds the words 'MAD JUMPER' for the score screen.
- F\$ Used as one-character input buffer when entering name.
- G\$ Temporary store for high score name.
- K\$ Holds user-defined character whose address is a musical routine — caught fruit.
- L\$ Holds several men which are used in lives display.
- Q\$ Holds user-defined character whose address is a sound routine — laser zap.
- T\$ Holds line display.
- U\$ Holds user-defined character whose address is a sound routine — all other sounds.
- Z\$ Holds status message — 'WELL DONE, NEW HIGH SCORE'.

Numeric

- A Used as FOR...NEXT index as well as index for AT statements.
- C Holds CODE of object.

D Used as part of J, e.g., ATTRE(J+D).
 E Used as index for column in ATTR, e.g., ATTR(X,E).
 F Used in part of score formula as well as a decision switch, IF F=...
 G Numeric constant with value of 1.
 H Flag variable used to determine whether symbol shift was pressed.
 I Holds random number which is used as a pointer for the placing of ladders, fruit.
 J As E but for row.
 L Used as index for L\$ which holds number of lives.
 N Counter in FOR...NEXT loop.
 O Numeric constant with value of 0.
 P Holds the number corresponding to the maximum number of ladders on any one line.
 Q Fruit count-1.
 R Holds random number corresponding to INK colour of object, fruit.
 S Line position of man.
 T Used as an index for T\$
 U Used as time counter, corresponding to U=T×8+8.
 V Holds number corresponding to the stage the game has reached.
 X Line position of chaser.
 Y Column position of chaser.
 Z Column position of man.
 HI Holds run-time high score.
 SC Holds current score.



```

1 INVERSE 0: BRIGHT 0: OVER 0
: FLASH 0: INK 6: PAPER 0: BORDE
R 0: CLS
2 FOR N=USR "A" TO USR "U"+
7
4 READ X: POKE N,X: NEXT N
100 DATA 60,24,126,153,24,36,66
,195,-1,129,X,-1,129,X,X,8,60,
26,63,28,60,24,31,144,184,252,19
2,252,184,144,240,192,96,80,72,6
8,238,X,68,60,126,118,126,X,60,0
,0,16,8,42,127,X,X,62,28,24,126,
-1,126,X,60,X,24,16,60,88,252,56
,60,24,248,-1,X,4,-1,64,X,-1
200 DATA 1,30,6,33,-1,0,17,60,0
,229,213,197,205,181,3,193,209,2
25,125,145,111,16,242,201
300 DATA 6,1,197,33,0,1,17,1,0,
229,205,181,3,225,17,16,0,167,23
7,82,32,240,193,16,233,201
400 DATA 0,17,3,0,6,90,229,213,
197,205,181,3,193,209,225,35,16,
244,201,0,0,0,0,-1,X,0,0,0,0,0,9
,29,63,3,63,29,9,15
500 PLOT 71,105: DRAW 0,34: DRA
W 14,-34: DRAW 14,34: DRAW 0,-34
: PLOT 114,105: DRAW 18,55: DRA
W 18,-55: PLOT 121,125: DRAW 22,0
: PLOT 165,105: DRAW 0,34: DRA
W 17,0: DRAW 7,-8: DRAW 0,-18: DRA
W -7,-8: DRAW -17,0
600 PLOT 25,86: DRAW 20,0: DRA
W 0,-44: DRAW -20,0: PLOT 40,64:
DRAW 10,0: PLOT 58,86: DRAW 0,-4
4: DRAW 24,0: DRAW 0,44: PLOT 91
,42: DRAW 0,44: DRAW 22,-44: DRA
W 22,44: DRAW 0,-44: PLOT 144,42
: DRAW 0,44: DRAW 22,0: DRAW 0,-
22: DRAW -22,0: PLOT 198,42: DRA
W -22,0: DRAW 0,44: DRAW 22,0: P
LOT 176,64: DRAW 14,0
700 PLOT 207,42: DRAW 0,44: DRA
W 22,0: DRAW 0,-22: DRAW -22,0:
DRAW 22,-22: PRINT INK 7: AT 19
,1: CHR# 127: "HENNING JON GRINI
JAN 1984"
800 INK 0: LOAD ""
9999 PAPER 7: LND 0: CLS : SAVE
"MAD JUMPER" LINE 1

```

```

100 LET O=0: LET G=1: LET HI=0:
DIM X$(5,15): DIM A$(5): BORDER
7: INK 0: PAPER 7: CLS : GO TO 6
001
370 IF ATTR (X-1,V)=56+R THEN
FOR N=168-J*8 TO 175-J*8: BEEP
.025,2: PLOT INVERSE G: E#8, N: D
RAW INVERSE G,7,0: NEXT N: PRIN
T INK 7: AT J,E: " : GO SUB 350
0
377 IF Y=1 OR Y=30 THEN GO SUB
3600
393 PRINT OVER 1: AT X,Y:O#
395 IF ATTR (X-1,Y)=56 THEN I
F X>S THEN LET X=X-1: GO TO 398

```

```

396 IF ATTR (X+1,Y)=56 THEN I
F X<S THEN LET X=X+1: GO TO 398
397 IF X=15 OR X=12 OR X=9 OR X
=6 OR X=3 THEN LET Y=Y+4: IF Y=
30 THEN LET O#:= CHR# 152: LET W
=-1
398 IF Y=1 THEN LET O#:= CHR# 1
46: LET W=1
399 IF X=S THEN IF Z=Y THEN G
O TO 4E3
400 PRINT OVER 1: AT X,Y:O#
401 IF CODE INKEY# =120 THEN
LET H=0: GO TO 1500
402 IF CODE INKEY# =122 THEN
LET H=1: GO TO 1500
403 IF CODE INKEY# =88 THEN
LET H=0: GO TO 2E3
404 IF CODE INKEY# =90 THEN
LET H=1: GO TO 2E3
408 IF CODE INKEY# =111 THEN
GO TO 1E3
409 IF CODE INKEY# =48 THEN
IF ATTR (S-1,Z)=56 THEN PRINT
AT S,Z: CHR# 145: LET S=S-1: IF
S=0 THEN LET S=16
410 IF X=S THEN IF Z=Y THEN G
O TO 4E3
411 PRINT AT S,Z: CHR# 144
412 IF K THEN GO SUB 3E3
415 PLOT U,7: DRAW 0,8: LET U=U
-1: IF U<0 THEN FOR N=255 TO 0
STEP -3: BEEP .008,N/7: OUT 254,
N: NEXT N: GO TO 4020
420 GO TO 400-0
500 IF ATTR (S-1,Z)=56 THEN P
RINT AT S,Z: CHR# 145: GO TO 70
0
600 PRINT AT S,Z: " "
700 IF S=15 OR S=12 OR S=9 OR S
=6 OR S=3 THEN RETURN
800 IF S=14 OR S=11 OR S=8 OR S
=5 OR S=2 THEN LET S=S+1: LET Z
=Z+H: IF NOT H THEN LET Z=Z+1
900 GO TO 410
1000 IF ATTR (S+1,Z)=56 THEN I
F ATTR (S-1,Z)=56 THEN PRINT
AT S,Z: CHR# 145: GO TO 1060
1010 IF ATTR (S+1,Z)=56 THEN P
RINT AT S,Z: " : GO TO 1060
1050 GO TO 410
1060 LET S=S+1
1070 IF S=17 THEN LET S=1
1080 GO TO 410
1515 GO SUB 500: IF NOT H THEN
IF Z=30 THEN LET Z=1: GO TO 41
0
1517 IF H THEN IF Z=1 THEN LET
Z=30: GO TO 410
1520 LET Z=Z+1
1522 IF H THEN LET Z=Z-2
1530 GO TO 410
2022 GO SUB 500: GO SUB 2500
2031 LET S=S-6: LET Z=Z+6
2033 IF H THEN LET Z=Z-2
2040 GO SUB 2700: GO SUB 2600
2044 PRINT INK 7: AT S,Z: " "
2045 GO SUB 2500: LET Z=Z+6
2063 IF H THEN LET Z=Z-2
2066 GO SUB 2700: GO SUB 2600
2068 PRINT INK 7: AT S,Z: " : B
O SUB 2500: LET Z=Z+6: LET S=S+6
2095 IF H THEN LET Z=Z-2
2099 IF ATTR (S+6,Z)=57 THEN L
ET S=S+6: GO SUB 4030: LET S=S-6
: GO TO 4020
2120 GO TO 410
2500 IF NOT H THEN IF Z=30 THEN
N LET Z=6: LET Z=Z-6
2510 IF H THEN IF Z=6 THEN LET
Z=30: LET Z=Z+6
2555 RETURN
2600 PRINT AT S,Z: CHR# 144: RA
NDOMIZE USR USR N#: IF ATTR (
S-6,Z)=56 THEN GO TO 410
2666 RETURN
2700 IF ATTR (S,Z)=56+R THEN L

```




```

ET SC=SC+U+0: LET K=G: LET F=F+G
: PRINT AT S,Z: " ": RANDOMIZE
USR USR K: PRINT AT 0,13-LEN
STR# SC: INVERSE G: SC: PRINT
INK G: AT J-G,E: CHR# 163: IF J=
2 THEN PRINT INK G: AT 16,E: C
HR# 163
2777 IF ATTR (S,Z)=57 THEN GO
SUB 4030: LET S=G+6: PRINT INK
7: AT S-G,Z: " ": GO TO 4020
2800 IF F=0+V THEN POKE USR K+
+G,30: POKE USR K+2,6: LET V=V
+G: LET D=0+8: LET F=0: LET T=T
+2: LET S=15: RANDOMIZE: LET Z=
INT ( RND *28)+2: LET X=3: LET Y
=15: LET L=L+G: GO TO 8111
2900 RETURN
3000 PRINT INK 7: AT J,E: " "
3100 LET K=0: IF F=0+V-G THEN P
OKE USR K+G,10: POKE USR K+2
,99
3222 IF V=6 THEN PRINT PAPER 5
: AT 20,5: CHR# 138: " " CHR#
133
3230 IF V>6 THEN PRINT PAPER 5
: AT 20,6: " ": LET D=48: LET
T=0
3232 RANDOMIZE: LET U=127-0: PR
INT PAPER 5: AT 20,V+T: (TO T)
3240 IF M THEN RETURN
3300 PRINT AT 20,22:0+V-F: " "
3500 LET R= INT ( RND *4)+2: LET
C=146+R: LET E= INT ( RND *28)+
2: LET D= INT ( RND *5): LET J=D
*3+2: IF ATTR (J-G,E) <> 49 THEN
N GO TO 3500
3520 IF ATTR (J+2,E+G)=57 THEN
IF ATTR (J+2,E+2)=57 THEN GO
TO 3500
3530 IF ATTR (J,E+G)=57 OR AT T
R (J,E-G)=57 THEN GO TO 3500
3533 IF SCREEN# (J,E) <> " " TH
EN GO TO 3500
3540 PRINT INK G:R: AT J,E: CHR
# C
3555 RETURN
3600 INK 2: GO SUB 3700: INK 0
3610 POKE USR Q# 33: POKE USR
Q#+G,156: RANDOMIZE USR Q#

```

```

: POKE USR Q# 233: POKE USR Q#
+G,201
3620 IF S=X THEN GO SUB 3700: G
O TO 4E3
3630 GO SUB 3700: RETURN
3700 PLOT G,172-X#8: DRAW OVER
G:252,0: RETURN
4000 GO SUB 4030
4020 BORDER 7: PRINT AT S,Z: " "
4022 LET L=L-G: IF S=X AND Z=Y T
HEN GO TO 4024
4023 PRINT OVER G: AT X,Y:0#
4024 IF ATTR (S-G,Z)=56 THEN P
RINT AT S,Z: CHR# 145
4025 PRINT AT 18,L+22: " ": FOR
N=0 TO 100: NEXT N: IF L=0 THEN
GO TO 4033
4028 LET M=G: GO SUB 3222
4029 RANDOMIZE: LET M=0: LET S=
15: LET Z= INT ( RND *28)+2: LET
X=3: LET Y=15: GO TO 8177
4030 POKE USR N#5,3: FOR N=154
TO 163: RANDOMIZE USR N#:
PRINT INK G: AT S,Z: CHR# N: N
EXT N: POKE USR N#5,G: RETURN
4033 POKE 23658,B: IF SC#H THEN
LET HI=SC: PRINT AT 0,30-LEN
STR# HI: FLASH G:HI
4040 FOR A=G TO 5: IF SC <= A(A)
THEN NEXT A: GO TO 6E3
4044 FOR N=0 TO 300: NEXT N
4100 LET X=G: LET Y=30
4106 FOR M=0 TO 6
4111 PAUSE G: PRINT INK N: AT 2
0,G:Z#(X TO Y)
4122 LET Y=Y+G: LET X=X+G: IF Y=
LEN Z+G THEN GO TO 4141
4140 NEXT N: GO TO 4106
4141 IF M THEN RETURN
4199 IF A <> 5 THEN FOR B=5 TO
A+G STEP -G: LET X#(B)=X#(B-G):
LET A#(B)=A#(B-G): NEXT B
4211 LET G#="": FOR N=G TO 15
4215 PRINT FLASH G: AT 20,15+N:
CHR# 67: PAUSE 0: LET F#= INKEY
#: IF CODE F#13 THEN GO TO 4
277
4222 IF CODE F#12 AND N=6 THEN
GO TO 4211
4225 IF CODE F#12 THEN LET N=
N-G: PRINT AT 20,15+N: " ": LET
G#G#( TO LEN G#-G): GO TO 421
5
4233 IF CODE F#<33 OR CODE F#>
91 THEN LET F#=" "
4244 PRINT AT 20,15+N:F#
4255 LET G#G#F#F# NEXT N
4277 LET X#(A)=G# LET A#(A)=SC
4288 LET Z#=" NAME PLEASE! " + CH
R# 143+G# CHR# 143: " "
0 SUB 4100
6000 FOR N=G TO 18: PRINT AT N,
0: CHR# 143: " "
" CHR# 143: NEXT N
6004 FOR N=8 TO 23: PRINT INK 3
: AT 5,N: CHR# 163: NEXT N: FOR
N=12 TO 19: PRINT INK 3: AT 13,
N: CHR# 163: NEXT N
6005 PLOT 30,86: DRAW 195,0: DRA
W 0,43: DRAW -195,0: DRAW 0,-43
6006 PLOT 38,30: DRAW 180,0: DRA
W 0,35: DRAW -180,0: DRAW 0,-35:
PLOT 129,30: DRAW 0,35
6010 LET C#="MAD JUMPER": PRINT
AT 2,3: CHR# 147: AT 2,28: CHR#
164: INK G: AT 4,8: "TODAYS GRE
ATEST": AT 12,12: "USE KEYS"
6014 FOR A=G TO 5: PRINT AT 5+A
,4#A: " 000000": NEXT A: FOR A=G
TO 5: IF A(A) THEN PRINT AT 5+
A,13#A(A): AT 5+A,12-LEN STR#
A(A):A(A): NEXT A
6144 PRINT AT 14,5:"0.....UP"
: AT 15,5:"0.....DOWN": AT 16,5:

```

```

"Z.....LEFT": AT 17,5:"X...RIGHT"
"
6155 PRINT AT 14,20:"Push": AT
16,17:"and 2 or X": AT 17,18:"to
jump!": AT 15,17:"CAPS SHIFT"
6222 PRINT BRIGHT G: AT 20,G: "
Press ENTER to start "
6333 FOR N=0 TO 7
6400 PRINT INK N: AT 2,11:C#
6444 GO SUB 6888: GO SUB 6888
6500 IF CODE INKEY# =13 THEN
GO TO 8E3
6666 NEXT N: GO TO 6250
6888 PLOT OVER G:25,156: DRAW
OVER G:61,0: PLOT OVER G:229,15
6: DRAW OVER G:-61,0: PAUSE 10-
N: RETURN
8000 PAPER 0: CLS : PAPER 7: POK
E 23658,0: INK 0: LET K# CHR# 7
5: POKE USR K#G,30: POKE USR
K#2,6
8088 LET D# CHR# 81: LET Z#="
WELL
DONE! YOU HAVE REACHED ONE OF
TODAYS HIGHEST SCORES.
NAME PLEASE
E! " CHR# 143: " "
8090 RESTORE 8090: RANDOMIZE: R
EAD W,S,Z,M,F,K,L,SC,O,T,X,Y,V,T
#,D#,N#: DATA G,15, INT ( RND *2
8)+2,0,0,0,2,0,8,14,3,15,G, "
", CHR# 146, CHR# 78
8099 DIM L#(10): FOR N=G TO 10:
LET L#(N)= CHR# 144: NEXT N
8100 PRINT INVERSE G: AT 0,G: "
SCORE=00000 ST1 HIGH=00000"
8111 PRINT AT 0,30-LEN STR# H
I: INVERSE G:HI: AT 0,17:V
8112 FOR N=3 TO 15 STEP 3: PRINT
AT N,G: " "
" : INK 7: AT N-G,G: " :
NEXT
T N
8125 FOR N=G TO 16 STEP 3: FOR J
=2 TO 29: PRINT INK G: PAPER 6:
AT N,J: CHR# 153: NEXT J: NEXT
N
8127 FOR N=3 TO 15 STEP 3: PRINT
AT N,0: CHR# 138: AT N,31: CHR
# 133: AT N-G,0: CHR# 138: AT N-
G,31: CHR# 133: NEXT N
8133 FOR N=G TO 30: PRINT INVER
SE G: AT 17,N: CHR# 163: NEXT N:
PRINT AT 18,G: "((( TIME )))":
+ CHR# 143+LIVES: " ": AT
18,22:L#( TO L): AT 20,16:"FRUI
T: " : INVERSE G: AT 20,G
, "
8144 IF V>2 THEN FOR N=3 TO 15
STEP 3: PRINT AT N,0: CHR# 147:
AT N,31: CHR# 164: NEXT N
8148 LET P#V: IF V>2 THEN LET P
=2: IF V>5 THEN LET P=V-3: LET
D#0-4
8150 RANDOMIZE: FOR J=G TO P: L
ET I= RND *27+2: FOR N=G TO 3: P
RINT AT N,I: CHR# 145: NEXT N:
PRINT AT 16,I: CHR# 145: FOR N=
4 TO 15 STEP 3: LET I= RND *27+2
: PRINT AT N,I: CHR# 145: AT N+
G,I: CHR# 145: AT N+2,I: CHR# 14
5: NEXT N: NEXT J
8155 IF V>4 THEN FOR J=5 TO V:
FOR N=2 TO 17 STEP 3: LET I= RND
*27+2: IF ATTR (N,I) #57 THEN
PRINT INK G: AT N,I: CHR# 127:
OVER G: CHR# 8: CHR# 99: NEXT N
8166 NEXT N: NEXT J: GO SUB 3100
8177 POKE USR N#5,17: RANDOMIZ
E USR USR N#: POKE USR N#5,G
8199 GO TO 400
9999 PAPER 7: INK 0: CLS : SAVE
"mad jumper" LINE 1

```

FUTURE WAR

FUTURE WAR is a game of strategy which requires thought and cunning. The computer force is shown on the left of the screen and the white force on the right is the one you move. Each force has 11 pieces made up of 10 lasers and a king. There are also some shields which can be moved by either player.

You have to input three characters to move. The first decides which column of shields to move, the second the direction in which they will move and the third determines the laser to be fired. Remember that although you move first, the computer always fires before you and also that your king will move in the opposite direction to the shields. If a shield is directed to move off the bottom of the field it will appear at the top and vice versa. Your king is able to fire, so if you shoot at one of your own lasers it will be lost.

Future War was written for the 16K ZX-81 by Jerome Laskowski, of London SE6.

```

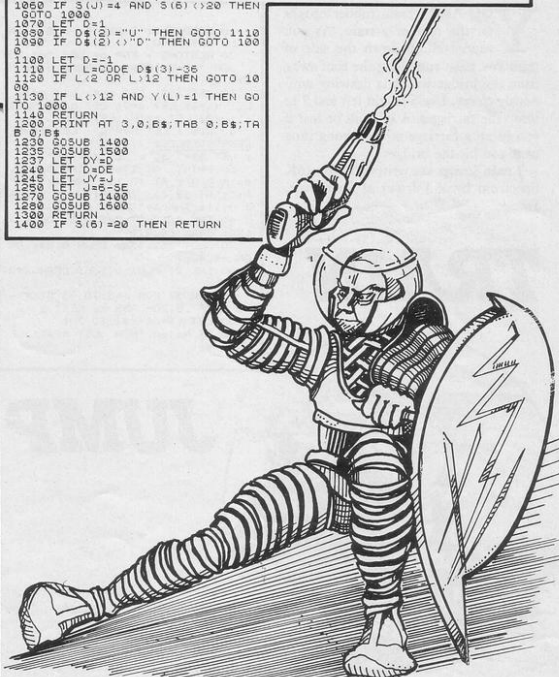
5 FAST
10 RAND 0
20 DIM E(12)
30 DIM N(2)
40 DIM S(7)
50 DIM Y(12)
60 DIM AS(12,5)
70 DIM BS(11)
80 DIM CS(10)
90 LET ELASERS=10
100 LET LASERS=10
110 LET XS=""
120 LET YS=""
130 GOSUB 400
140 GOSUB 400
150 GOSUB 1000
160 GOSUB 1000
170 GOSUB 1000
180 GOSUB 1000
190 GOSUB 1000
200 GOSUB 2100
210 GOSUB 2200
220 GOSUB 2300
230 IF Y(1) < 2 THEN GOTO 150
240 GOSUB 3000
250 STOP
400 PRINT TAB 7;"<<< FUTURE WAR
410 LET UR=500
420 PRINT AT 4,12;"SHIELDS";TAB
430;"54321";TAB 13;"-";
440 LET OS=CHR$(176+CHR$(18)
450 LET RS=CHR$(179+CHR$(18)
460 LET KE=INT (RAND*18+2)
470 LET KY=INT (RAND*18+2)
480 IF (KY<1/2)<>INT ((KY-KE)/
2) THEN GOTO 480
490 FOR J=1 TO 5
500 FOR K=1 TO 4
510 LET P=INT (RAND*10+2)
520 IF AS(P,J)="" THEN GOTO 51
0
530 LET AS(P,J)=""
540 LET N(P)=N(P)+1
550 NEXT K
560 NEXT J
570 FOR K=2 TO 11
580 LET LS=CHR$(K+154)+" "
590 LET RS=CHR$(K+156)+" "
600 PRINT TAB 8;LS
610 LET XS=XS+""
620 LET YS=Ys+""
630 NEXT K
640 PRINT TAB 13;"-----";TAB 13
650;"54321";TAB 2;"UR";UR
660 PRINT AT 5,KE,S,OS;AT 5,KY,
24,RS
670 SLOW
680 RETURN
690 LET N(1)=N(11)
700 LET N(12)=N(2)

```

```

720 LET L=KE-1
730 KU=N(1)+1+Y(L)-E(L)
740 IF KY=L THEN LET KU=KU+1
750 LET L=KE+1
760 LET KD=N(L)+1+Y(L)-E(L)
770 IF KY=L THEN LET KD=KD+1
780 LET DE=0
790 IF KU>KD OR (KU=KD AND INT
(RAND*2)=0) THEN LET DE=-1
800 LET DE=0
810 FOR L=2 TO 11
820 LET VALUE=(1-E(L))*(6-3+Y(L)
-N(L))
830 IF (ABS (KY-L)=1 OR ABS (KY
L)=2) AND E(L)+N(L)-Y(L)+1=0 TH
EN LET VALUE=VALUE*3
840 IF VALUE<BEST THEN GOTO 350
850 IF VALUE<BEST AND INT (RAND*
2)=0 THEN GOTO 880
860 LET FE=L
870 LET BEST=VALUE
880 NEXT L
890 IF E(KE+DE)=1 AND N(KE+DE)=1
AND Y(KE+DE)=0 OR (Y(KE+DE)=1
AND KE=KY) THEN LET FE=12
900 LET SE=INT (RAND*5+1)
910 IF (316-SE)*4 AND 3(6)<>20 T
HEN GOTO 900
920 RETURN
1000 PRINT AT 20,0;"INPUT: SHIEL
D DIRECTION LASER"
1005 PRINT TAB 0;"SD" 5-1
U OR D A-K"
1010 INPUT DS
1020 PRINT AT 20,0;S;TAB 0;C$
1030 IF LEN DS<3 THEN GOTO 1000
1040 IF DS(1)="" OR DS(1)=""S" T
HEN GOTO 1000
1050 LET J=6-VAL DS(1)
1060 IF S(J)=4 AND S(6)<>20 THEN
GOTO 1000
1070 LET D=1
1080 IF DS(2)=""U" THEN GOTO 1110
1090 IF DS(2)=""D" THEN GOTO 100
1100 LET D=-1
1110 LET L=CODE DS(3)-35
1120 IF L<2 OR L>12 THEN GOTO 10
00
1130 IF L<2 AND Y(L)=1 THEN GO
TO 1000
1140 RETURN
1200 PRINT AT 3,0;BS;TAB 0;BS;TA
B 0;S$
1230 GOSUB 1400
1240 GOSUB 1500
1250 LET DY=0
1260 LET D=DE
1270 LET JY=J
1280 LET J=6-SE
1290 GOSUB 1400
1300 GOSUB 1600
1300 RETURN
1400 IF S(6)=0 THEN RETURN
1405 PRINT AT 6,12;J;CHR$(3+(1-
0)*54);AT 17,12;J;CHR$(3+(1-0)*
54)
1410 LET TOP=13-(6,5+0*5,5)
1415 LET BOT=5+0*5,5
1420 FOR K=TOP TO BOT STEP D
1425 IF AS(K,J)=AS(K+D,J) THEN G
OTO 1440
1430 LET N(K)=N(K)+1
1440 IF AS(K+D,J)=AS(K,J) THEN L
ET N(K)=N(K)-5
1445 LET AS(K,J)=AS(K+D,J)
1447 IF KY=J THEN PRINT AT K+5
,13;AS(K)
1450 NEXT K
1455 IF AS(BOT+D,J)=AS(TOP,J) TH
EN GOTO 1470
1460 LET N(BOT+D)=N(BOT+D)+1
1465 IF AS(TOP,J)=AS(BOT+D,J) TH
EN LET N(BOT+D)=N(BOT+D)-2
1470 LET AS(BOT+D,J)=AS(TOP,J)
1475 PRINT AT BOT+D+5,13;AS(BOT+
D)
1480 PRINT AT 6,13;"-----";AT 17
,13;"-----"
1490 RETURN
1500 PRINT AT 5,KY,24;" "
1510 LET KY=KY+D
1520 IF KY=1 THEN LET KY=11
1530 IF KY=12 THEN LET KY=2
1540 PRINT AT 5,KY,24;RS
1550
1560 PRINT AT 5,KE,S;S$
1570 PRINT AT 5,KE,S;S$
1580
1590 PRINT AT 5,KE,S;S$
1600 RETURN

```



```

1700 LET RANGE=0
1710 LET RS=0
1720 LET FP=FE
1730 IF FE<12 THEN RETURN
1740 LET RANGE=3
1750 LET FP=K
1760 LET RS=3
1770 RETURN
1780 LET L055=0
1810 LET K5=RS(FP)
1820 IF N(FP)=0 THEN GOTO 1920
1830 FOR K=1 TO 5
1840 IF RS(FP,K)="" THEN GOTO 1
1850 NEXT K
1860 LET N(FP)=N(FP)-1
1870 LET L055=L055+K
1880 LET RS(FP,K)=""
1890 LET RANGE=RANGE+3+K
1900 LET S(K)=S(K)+1
1910 LET S(6)=S(6)+1
1920 GOTO 2030
1930 IF Y(FP)=1 THEN GOTO 1990
1940 LET RANGE=RANGE+13
1950 LET Y(FP)=1
1960 IF FP=1 THEN LET Y(1)=1
1970 IF FP=2 THEN LET Y(2)=1
1980 LET LASERS=LASERS-1
1990 LET LASER=0 THEN LET Y(1)=2
2000 GOTO 2030
2010 LET RANGE=RANGE+16
2020 IF KY=FP THEN GOTO 2030
2030 LET L055=500
2040 LET Y(1)=2
2050 LET F5=K5(1 TO RANGE)
2060 GOSUB 2050
2070 RETURN
2080 LET S5=C(1 TO RANGE)
2090 FOR T=1 TO 5
2100 PRINT AT 5:FP,13;K5;AT 5:FP
2110 RS=5
2120 PRINT AT 5:FP,10+RS;E5
2130 NEXT T
2140 RETURN
2150 LET RANGE=0
2160 LET K050=0
2170 LET FP=L
2180 IF K<12 THEN RETURN
2190 LET KSHOT=1
2200 IF Y(KV)=0 THEN RETURN
2210 LET RANGE=3
2220 LET K5=K
2230 LET L055=0
2240 LET RS=0
2250 LET FP=FE
2260 IF FE<12 THEN RETURN
2270 LET RANGE=3
2280 LET FP=K
2290 LET RS=3
2300 RETURN
2310 LET L055=0
2320 LET K5=RS(FP)
2330 IF N(FP)=0 THEN GOTO 2350
2340 FOR K=1 TO 5
2350 IF RS(FP,K)="" THEN GOTO 2
2360 NEXT K
2370 LET N(FP)=N(FP)-1
2380 LET L055=L055+K
2390 LET RS(FP,K)=""
2400 LET RANGE=RANGE+3+K
2410 LET S(K)=S(K)+1
2420 LET S(6)=S(6)+1
2430 GOTO 2500
2440 IF E(L)=1 THEN GOTO 2450
2450 LET RANGE=RANGE+13
2460 LET GRIN=100
2470 LET E(L)=1
2480 IF L=1 THEN LET E(1)=1
2490 IF L=2 THEN LET E(2)=1
2500 LET ELASERS=ELASERS-1
2510 LET RS=2
2520 IF ELASERS=0 THEN LET Y(1)=
2530 GOTO 2500
2540 IF E(L)=1 THEN GOTO 2450
2550 LET RANGE=RANGE+13
2560 LET GRIN=100
2570 LET E(L)=1
2580 IF L=1 THEN LET E(1)=1
2590 IF L=2 THEN LET E(2)=1
2600 LET ELASERS=ELASERS-1
2610 LET RS=2
2620 IF ELASERS=0 THEN LET Y(1)=
2630 GOTO 2500
2640 LET RANGE=RANGE+16
2650 IF K<12 THEN GOTO 2490
2660 LET GRIN=1000
2670 LET Y(1)=5
2680 LET RS=5
2690 LET F5=K5(1 TO RANGE)
2700 GOSUB 2050
2710 RETURN
2720 LET S(7)=S(7)+GAIN-LOSS
2730 LET NET=GAIN-LOSS
2740 PRINT AT 3:0;"GAIN " GAIN;T
2750 "LOSS " LOSS;TAB 1;"NET " N
2760 PRINT AT 5,21;5000;"S(7)
2770 IF S(7)/1000 THEN PRINT "
2780 RETURN
2790 PRINT AT 20,0;"UUR OVER - Y
2800 LOSE
2810 IF GAIN=1000 OR ELASERS=0 T
2820 THEN PRINT AT 20,15;"UIN
2830 PRINT TAB 8;"UURD RECORD R
2840 REMAINS UNCHANGED"
2850 IF S(7)/100 THEN PRINT AT 21
2860 "BEATEN - WELL DONE"
2870 RETURN

```

```

2205 IF KSHOT=1 AND Y(KV)=0 THEN
2210 RETURN
2210 IF KSHOT=0 AND Y(L)=1 THEN
2220 RETURN
2220 LET K5=K5(L)
2230 IF N(L)=0 THEN GOTO 2350
2240 FOR K=1 TO 5
2250 IF RS(L,K)="" THEN GOTO 22
2260 NEXT K
2270 LET N(L)=N(L)-1
2280 LET RS(L,K)=""
2290 LET RANGE=RANGE+9-K
2300 LET RS=2-K
2310 LET S(K)=S(K)+1
2320 LET S(6)=S(6)+1
2330 GOTO 2500
2340 IF E(L)=1 THEN GOTO 2450
2350 LET RANGE=RANGE+13
2360 LET GRIN=100
2370 LET E(L)=1
2380 IF L=1 THEN LET E(1)=1
2390 IF L=2 THEN LET E(2)=1
2400 LET ELASERS=ELASERS-1
2410 IF ELASERS=0 THEN LET Y(1)=
2420 GOTO 2500
2430 LET RANGE=RANGE+16
2440 IF K<12 THEN GOTO 2490
2450 LET GRIN=1000
2460 LET Y(1)=5
2470 LET RS=5
2480 LET F5=K5(1 TO RANGE)
2490 GOSUB 2050
2500 RETURN
2510 LET S(7)=S(7)+GAIN-LOSS
2520 LET NET=GAIN-LOSS
2530 PRINT AT 3:0;"GAIN " GAIN;T
2540 "LOSS " LOSS;TAB 1;"NET " N
2550 PRINT AT 5,21;5000;"S(7)
2560 IF S(7)/1000 THEN PRINT "
2570 RETURN
2580 PRINT AT 20,0;"UUR OVER - Y
2590 LOSE
2600 IF GAIN=1000 OR ELASERS=0 T
2610 THEN PRINT AT 20,15;"UIN
2620 PRINT TAB 8;"UURD RECORD R
2630 REMAINS UNCHANGED"
2640 IF S(7)/100 THEN PRINT AT 21
2650 "BEATEN - WELL DONE"
2660 RETURN

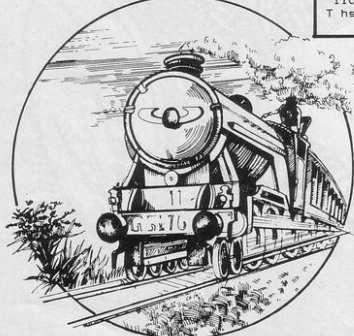
```



YOU ARE a train robber caught on the roof of a train. As you cannot climb down the side of train you must run along the roof away from the bridge which is drawing ominously closer. Use 5 to run left and 7 to jump the carriages. A life will be lost if you jump a carriage at the wrong time or if you hit the bridge.

Train Jump was written for the 16K Spectrum by P J Irwin of Sherborne, Dorset.

TRAIN



JUMP

```

10 BORDER 0: PAPER 0: CLS : IN
K 5: LET HS=0
20 RESTORE : FOR q=USR "a" TO
USR "e"+7: READ s: POKE q,s: N
EXT q
30 LET a=3: LET b=4: LET c=1:
LET cs=0: LET e=0: LET hf=0: LET
l1v=3: LET p=19: LET sc=0
40 CLS : LET n$="D": LET t$="E"
DEDEDDEDECB
: LET s$="BC": LET c$="DE"
50 PRINT AT 14,1: INK 3;"Liv
es! A A A": AT 10,11: INK 4;"Scor
e:" AT 12,11: INK 4;"High :": A
T 0,11: INK 6;"Train Jump"
60 INK 4: PLOT 248,136: DRAW 0
,24: DRAW -4,4,1
70 PLOT 252,136: DRAW 0,24: DR
AW -4,4,-1
80 INK 2: PLOT 0,135: DRAW 245
,0
90 INK 5: FOR z=3 TO -3 STEP -
1: BEEP 5,20-ABS z: NEXT z
100 LET t$=n$+t$( TO 30)
110 IF hs<sc THEN LET hf=1: LE
T hs=sc

```

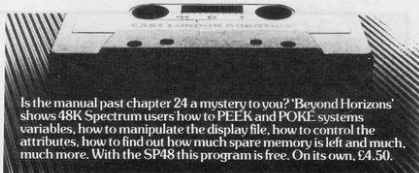
```

120 PRINT AT 10,17: INK 4;sc;
AT 12,17: FLASH hf: INK 4;hf
130 PRINT AT a,b: INK 6;"A"
140 PRINT AT a,0; t$
150 IF e=0 THEN LET e=e+1-(e=3
)*4: IF e < 0 THEN LET n$=e(e
): GO TO 180
160 IF c=2 AND RND >(p/20) THE
N LET c=0: LET e=1: LET n$=e(1
): GO TO 180
170 LET c=c+1-(c=2)*2: LET n$=c
(c)
180 BEEP (p/200)+.001,0-(p/2)
190 LET a1=a: LET b1=b
200 IF a<3 THEN LET a=3: GO TO
250
210 IF INKEY$="7" THEN LET a
=a+1: BEEP .005,30: GO TO 250
220 IF INKEY$="5" THEN GO TO
250
230 LET b=b+1: LET sc=sc-1
240 IF a=3 AND t$(b)="" THEN
LET l1v=l1v+1: LET a=2: PRINT A
T 14,17+l1v*2;" ": BEEP 1,30: I
F l1v=0 THEN GO TO 300
250 IF b=31 THEN LET l1v=0: BE
EP 1,30: PRINT AT 14,17;"
": GO TO 300
270 LET sc=sc+1: IF (sc+1)/20=
INT ((sc+1)/20) THEN LET p=p+1+
(p=0)
280 IF a <> a1 OR b <> b1 THEN
PRINT AT a1,b1;" "
290 GO TO 100
300 FOR s=1 TO 6
310 DIM i$(704): PRINT AT 0,0:
OVER 1: INK z,i$: BEEP z/10,-z*
2: NEXT z
320 INPUT "ENTER" y/n to play
again: LINE z$: IF z$="n" THEN
STOP
330 FOR z=30 TO -30 STEP -1: BE
EP .01, ABS z: NEXT z: GO TO 30
900 DATA 24,24,128,254,24,40,39
,94,0,8,136,252,252,254,255,48,0
,192,60,63,63,63,255,24,0,252,14
6,146,242,254,255,24,0,63,100,10
0,127,127,255,12

```


Ask for our products at
your local computer shop

Extend your 16k Spectrum to 48k for just £23.00. And get a Free program worth £4.50 into the bargain.



Is the manual past chapter 24 a mystery to you? 'Beyond Horizons' shows 48K Spectrum users how to PEEK and POKE systems variables, how to manipulate the display file, how to control the attributes, how to find out how much spare memory is left and much, much more. With the SP48 this program is free. On its own, £4.50.

SP48B, 32k Memory Extension with Program — £27

The SP48 simply plugs into the sockets provided by Sinclair inside your Spectrum and turns your 16k machine into an absolutely standard 48k ready to run 48k programs.

The SP48 fits Issue 2 and Issue 3 Spectrums. Full step-by-step instructions are provided. Fitting is easy and there is no soldering.

The SP48 carries our full warranty and all our customers enjoy the benefits of our renowned product support.

And you get a free copy of Beyond Horizons, and educational program which has already enlightened thousands of 48k Spectrum owners about the inner workings of their computers.

48/80 FORTH

This compiler and editor is fast becoming recognised as the most professional and highest quality implementation of the FORTH language on the Spectrum. FORTH gives you the speed of machine code without the tedium of machine-code programming.

All the Spectrum's excellent graphics commands are retained including DRAW, PLOT and CIRCLE. Real arcade quality sounds can be produced using BEEP.

More advanced FORTH programmers will find that 48/80 FORTH provides a complete implementation of FIG-FORTH, including the sophistications of BUILDS, DOES and CODE.

Each 48/80 FORTH cassette includes a separate FORTH editor which uses part of RAM as if it were disk. The 48k Spectrum allows a 16k RAM 'disk', while leaving nearly 20k of dictionary space. A comprehensive user-manual is also included, which covers both compiler and editor, and has a lucid beginners introduction.

Extensions to 48/80 FORTH will shortly be available to existing customers at a nominal charge. These will include floating point arithmetic, and microdrive handling.

TRADE ENQUIRIES WELCOME — Are you on our trade/export mailing list?

All products on this order form are in stock. Same day dispatch for phoned Access and Visa orders.

To East London Robotics Ltd; Please send by return (tick items required)

☐ SP48B (for Spectrum Issues 2 or 3) £27

☐ BEYOND HORIZONS (48k) £4.50

☐ 48/80 FORTH (48k or 80k) £14.95

Postage 0.65p. I enclose a cheque/PO for _____ My Access/Visa No. is _____

Name _____

Address _____

East London Robotics Limited, Gate 11, Royal Albert Dock, London E16.

Orders and special enquiries

01-474 4430

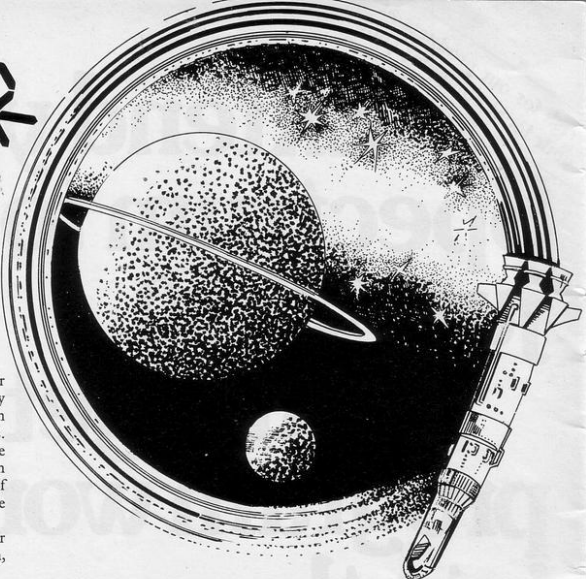
Telex 8813271 (Trade only)

**EAST LONDON
ROBOTICS**

SATELLITE COLLECTOR

TRAVEL through space in your craft collecting satellites by flying over them. Extra fuel can be gained by hitting the fuel dumps. Forcefields appear from time to time and they have only one gap through which you can pass. If you run out of fuel or hit a forcefield you will hurtle through space and the game will end.

Satellite Collector was written for the 16K ZX-81 by Ian Dando of Leigh, Lancs.



```

1 LET HISCORE=0
2 LET AS="?????????"
3 PRINT AT 0,10;"STARFLIGHT";
AT 1,10;"*****"; AT 3,0;"IN
THIS GAME YOU HAVE TO COLLECT SAT
ELITES (O) IN YOUR CRAFT. AS
TIME GOES BY YOUR FUEL GETS LOW
ER. YOU CAN GAIN EXTRA FUEL BY HIT
TING THE FUEL DUMPS (B). ALS
O FORCEFIELDS APPEAR EVERY 500FT
EN WITH ONLY 1 GAP IN THEM. TH
E GAME ENDS IF YOU HIT A
ORCEFIELD OR RUN OUT OF FUEL.
USE KEYS S AND 8."
4 PAUSE 4E4
5 LET X=15
6 LET FUEL=50
7 RAND
10 LET SCORE=0
11 CLS
30 PRINT AT 21,INT (RND*30)+1;
"O"
36 IF RND<.05 THEN GOSUB 200
37 IF RND<.02 THEN GOSUB 300
40 PRINT AT 6,X;" "
50 IF PEEK (PEEK 16398+256*PEE
K 16399)=52 THEN LET SCORE=SCORE
+10
55 IF PEEK (PEEK 16398+256*PEE
K 16399)=141 THEN LET FUEL=FUEL+
30
56 IF PEEK (PEEK 16398+256*PEE
K 16399)=128 THEN GOTO 900
60 PRINT AT 6,X;" "
65 PRINT AT 6,X;" "
70 LET X=X+(INKEY$="8")-(INKEY
$="5")
80 PRINT AT 6,X;" "
90 SCROLL
95 LET FUEL=FUEL-1
96 IF FUEL<=0 THEN GOTO 1000
100 GOTO 30
200 PRINT AT 21,INT (RND*30)+1;
"O"
220 RETURN
300 SCROLL
305 PRINT AT 6,X;" "
310 PRINT AT 21,INT (RND*30)+1;
320 RETURN

```

```

500 FOR F=6 TO 21
510 PRINT AT F,X;" "
515 PRINT AT F,X;"O"
516 PRINT AT F,X;" "
520 NEXT F
525 FOR F=1 TO 25
530 PRINT AT 21,X-1;" "
540 PRINT AT 21,X-1;" "
541 PRINT AT 21,X-1;" "
542 PRINT AT 21,X-1;" "
550 NEXT F
599 PRINT AT 21,X-2;"CRUM"
610 FOR F=0 TO 21
620 PRINT AT F,0;" "
530 NEXT F
645 IF DESCISION=1 THEN PRINT A
T 5,5;"YOU HIT A FORCE FIELD"
646 IF DESCISION=2 THEN PRINT A
T 5,5;"YOU RAN OUT OF FUEL"
650 PRINT AT 10,8;"YOUR SCORE W
AS:";SCORE
670 IF SCORE>HISCORE THEN GOTO
800
675 PRINT AT 15,10;"HIGH-SCORE:
";HISCORE
676 PRINT AT 17,10;"BY:";AS
677 PRINT AT 20,10;"PRESS A KEY"
678 PRINT AT 20,10;" "
679 IF INKEY$="" THEN GOTO 677
830 GOTO 5
830 PRINT AT 15,2;"WELL DONE. A
NEW HIGH SCORE"
810 LET HISCORE=SCORE
820 PRINT AT 17,4;"PLEASE INPUT
YOUR NAME"
830 INPUT AS
831 PRINT AT 20,10;"PRESS A KEY"
832 PRINT AT 20,10;" "
835 IF INKEY$="" THEN GOTO 831
840 GOTO 5
900 LET DESCISION=1
910 GOTO 500
1000 LET DESCISION=2
1001 GOTO 500
9998 SAVE "STAR"
9999 RUN

```

ROMAN SQUASH

YOU CONTROL the Roman who is standing in the pit and you must help him in his fight for life by moving him so that the arrows hit his shield and rebound. If the arrow passes him and hits the bottom of the pit, he will be fed to the lions. Use keys Q and P to move left and right and see how many time units you can survive.

Roman Squash was written for the 16K Spectrum by Barry Sims of Leek, Staffs.



```

1 FOR x=0 TO 7: READ a: POKE
USR "a"+x,a: NEXT x: DATA 31,3,
5,9,17,224,76,160
2 FOR x=0 TO 7: READ a: POKE
USR "b"+x,a: NEXT x: DATA 248,1
92,160,144,136,7,6,5
3 FOR x=0 TO 7: READ a: POKE
USR "c"+x,a: NEXT x: DATA 160,9
6,224,17,9,5,3,31
4 FOR x=0 TO 7: READ a: POKE
USR "d"+x,a: NEXT x: DATA 5,6,7
,136,144,160,192,248
5 FOR x=0 TO 7: READ a: POKE
USR "e"+x,a: NEXT x: DATA 255,6
6,102,102,90,60,60,24
10 BORDER 3: PAPER 3: INK 7: C
LS
20 PRINT AT 0,0: PAPER 0: "
"
25 PRINT AT 21,1: PAPER 5: "
"
30 FOR x=0 TO 21: PRINT AT x,
0: PAPER 0: " ": AT x,31: " "
35 NEXT x
40 LET a$="A": LET x=1: LET y=
INT (RND *29)+1: LET c=18: LET
d=15
50 LET a=1: LET ball=4: LET t=
0
52 IF y >= 15 THEN LET b=-1
55 IF y <= 14 THEN LET b=1
56 LET ball=ball-1
58 PRINT AT 0,27: PAPER 0: "
": AT 0,2: PAPER 0: INK 7: "Time
": AT 0,23: "Men": FOR w=1 T
O ball: PRINT PAPER 0: "E": NEX
T w
60 LET x=x+a: LET y=y+b
61 IF t=999 THEN GO TO 600
62 LET t=t+1: PRINT AT 0,7: P
APER 0: INK 7: t
65 LET d=d+(INKEY$="p" AND d
+1<30)-(INKEY$="q" AND d>0)
70 PRINT AT x,y: OVER 1: PAPER
3: INK 0: a$
75 PRINT AT c+1,d: "E"
80 IF d=0 OR d+2=31 THEN PRIN
T AT c+1,0: INK 0: (IGB) THEN AT
C+1,31: INK 0: (IGB)
92 IF a=1 AND b=1 THEN PRINT
AT x-1,y-1: PAPER 3: "
94 IF a=-1 AND b=1 THEN PRINT
AT x+1,y-1: PAPER 3: "
96 IF a=1 AND b=-1 THEN PRINT
AT x-1,y+1: PAPER 3: "
98 IF a=-1 AND b=-1 THEN PRIN
T AT x+1,y+1: PAPER 3: "
105 IF ball=0 THEN GO TO 500

```

```

110 IF x=1 THEN LET a=1
120 IF y=1 THEN LET b=1
125 IF y=d+1 AND x=c AND a=-1 T
HEN LET a=1: BEEP .01,20
127 IF y=d+1 AND x=c AND a=1 TH
EN LET a=-1: BEEP .01,20
130 IF y=30 THEN LET b=-1
131 IF a=1 AND b=1 THEN LET a$
="C"
132 IF a=-1 AND b=1 THEN LET a
$="A"
133 IF a=1 AND b=-1 THEN LET a
$="D"
134 IF a=-1 AND b=-1 THEN LET
a$="B"
135 IF (y=30 OR y=1 OR x=20 OR
x=1) THEN BEEP .01,15
136 IF x=20 THEN GO SUB 200: L
ET a=-1: IF ball>0 THEN GO TO 5
6
140 GO TO 60
200 LET a=-1: BEEP 1,-20: BEEP
2,-30: RETURN
500 CLS
510 PRINT AT 3,3: "Your three m
en lasted for ";
520 PRINT " time units."
530 PRINT: PRINT " Too bad the
lions are going to enjoy a
nice dinner.!!"
540 FOR w=0 TO 10: FOR r=0 TO 7
: BORDER r: BEEP .01,r: NEXT r:
NEXT w
550 BORDER 3
560 INPUT "Another game ? (y/n)
":d$

```

```

570 IF d$="y" THEN RUN
580 STOP
600 CLS: FOR w=0 TO 50: BEEP .
01,w: NEXT w
610 CLEAR
620 LET x=20: LET y=1: LET a=20
: LET b=30
630 LET x=x-1: LET y=y+1: LET a
=-1: LET b=b-1
635 IF x=5 THEN GO TO 670
640 BEEP .01,x: BEEP .01,a
650 PRINT AT x,y: "A": AT a,b: "
B"
655 PRINT AT x+1,y-1: " ": AT a
+1,b+1: " "
660 GO TO 630
670 FOR c=0 TO 30: PRINT AT x-
1,y-2: INK INT (RND *7): (IG2:
2*IGB:IG1)
675 BEEP .001, INT (RND *20)+4
0
680 PRINT AT x,y-2: INK INT (
RND *7): (4*IGB)
690 PRINT AT x+1,y-2: INK INT
(RND *7): (G7:2*IGB:IG4)
700 NEXT c
710 CLS
720 PRINT AT 3,0: " You finis
hed the time limit: you are no
w a general in the army.!!"
730 INPUT "Another game ? (y/n)
":d$
740 IF d$="y" THEN RUN
750 STOP

```

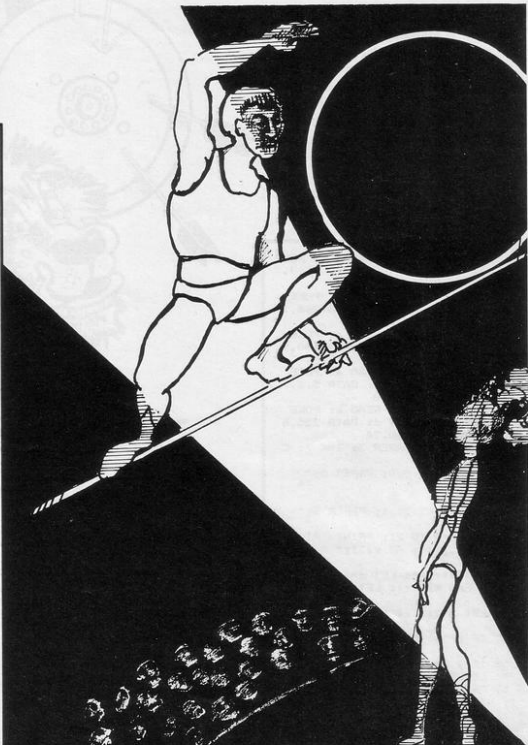

ALONG THE WIRE

ALONG THE WIRE is a version of the fairground game, the idea being to guide a hoop along a randomly-generated wire. You have to keep the right-hand side of the hoop on the wire or the game ends. Written for the 16K Spectrum by Andrew Holder of Weymouth, Dorset.

```

1 BORDER 2: PAPER 4: CLS
2 GO SUB 500
4 CLEAR
5 LET w=14
6 LET i=1
8 LET t=90
9 LET sc=0
10 CLS
11 DIM z(250)
12 PRINT AT 0,0;" (iL:iE:iV:
13 iE:iL) ";i
15 PLOT 29,90
20 FOR a=30 TO 220 STEP 10
25 LET b=a/a
26 LET k=a
27 GO SUB 300
40 FOR q=a TO a+9
41 IF t<50 OR t>130 THEN GO S
UB 80
42 LET t=t+s
45 LET z(q)=t
50 DRAW 1,s
60 NEXT q
70 NEXT a
75 GO TO 100
80 LET a=k: GO SUB 300
85 RETURN
100 LET c=95
110 FOR g=30 TO 230 STEP 2
115 LET d=c
120 OVER 1: PLOT g,c: DRAW -w,0
: DRAW 0,-w: DRAW w,0: DRAW 0,w-
1
130 IF C-Z(G)=1 THEN GO TO 210
133 IF C-Z(G)=0 THEN GO TO 210
135 IF C-Z(G)=w THEN GO TO 210
140 IF C-Z(G)=w+1 THEN GO TO 2
10
150 IF INKEY#="6" THEN LET c
=c-2
160 IF INKEY#="7" THEN LET c
=c+2
180 IF INKEY#="" THEN GO TO
149
190 OVER 1: PLOT g,d: DRAW -w,0
: DRAW 0,-w: DRAW w,0: DRAW 0,w-
1
200 NEXT g
205 GO TO 230
210 BEEP 1,6: BEEP 1,2
215 PRINT AT 2,10;"(iL:iO:iU:
iH:sp:iL:iU:iC:iK)"
220 PRINT " YOU REACHED L
EVEL "i
225 GO TO 280
230 FOR N=30 TO 50 STEP 3: BEEP
.05,N: NEXT N
232 IF I=5 THEN GO TO 270
235 PRINT AT 2,10;"(iW:iE:iL:i
L:sp:iD:iN:iE)"
240 PRINT AT 3,5;"NOW THINGS B
ET HARDER: FOR F=1 TO 100: NEXT
F
250 LET w=w-2: LET i=i+1
260 GO TO 8

```



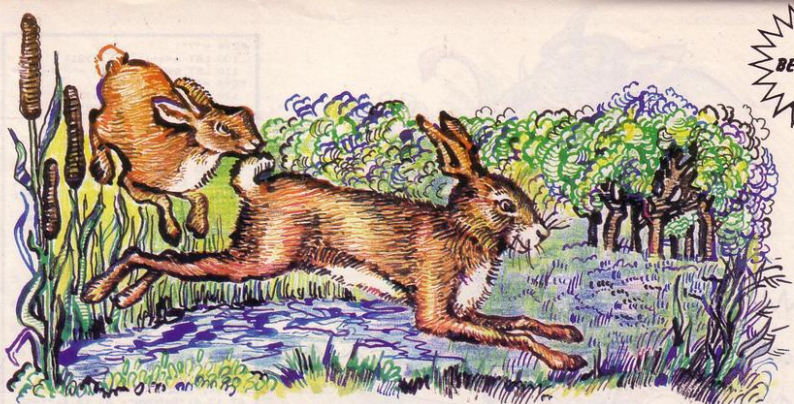
```

270 CLS : PRINT AT 10,10;"(iV:
iO:iU:iV:iE:sp:iD:iO:iN:iE:sp
iL:iY)"
275 FOR N=1 TO 15: BEEP .15, IN
T ( RND *20): NEXT N
280 INPUT "ANOTHER GAME (Y/N) :
":V$ IF V$="Y" OR V$="y" THEN
GO TO 2
290 STOP
300 LET I=INT ( RND *3)+1
310 IF I=1 THEN LET s=1
320 IF I=2 THEN LET s=0
330 IF I=3 THEN LET s=-1
335 IF A<32 THEN LET S=0
340 RETURN
500 PRINT AT 1,9;"(iA:iL:iO:iN
iG:sp:iL:iH:iE:sp:iW:iL:iR:iE)"
510 PRINT " The object of

```

the game is
re hoop along
ure that you
hand side of
the wire."
520 PRINT " ,"
lete the 1st
onto the
the hoop gets
530 PRINT " ,"
if the right
e hoop strays
you complete
(unlikely)."
540 PRINT " ,"
8-Forward",...,"Press any key"
550 IF INKEY#="" THEN GO TO
550
560 RETURN

to guide a squa
a wire,making s
keep the right-
the square over
Once you comp
screen you move
next level and
smaller."
The game ends
hand side of th
off the wire,or
all 5 screens.-
6-Down 7-Up
8-Forward",...,"Press any key"
550 IF INKEY#="" THEN GO TO
550
560 RETURN



HUNT SABOTEUR

CHASE the hares from the field into the woods to save them from coursing the next day. Your task is made more difficult by a policeman who runs after you. Use the cursor keys to move.

Hunt Saboteur was written for the 16K Spectrum by Nathan Roche of Birkenhead, Merseyside.

The theme is that you play the part of someone who wishes to disrupt the hunt the next day. To do so, you have to chase as many hares into the forest as you can but the police know your intention, so while you are trying to save the hares you have to watch your step as well.

You chase the hare ' ' into the forest using the cursor keys, after which another hare will be dumped on the screen in a random position. Note that the policeman can travel in a diagonal fashion but you cannot.

Here is how the program works. Lines 10-15 print the instructions. Notice the PAUSE 0, which makes the program stop until a key is pressed. Lines 20-80 set up the initial variables and display the grass and forest. The double loop in line 60 prints the '*' which makes up the forest.

Lines 100-130 check to see which key is being pressed and print the man. Notice the neat way the keys are checked in lines 110 and 120.

The logic behind the hare running away from you is in lines 150-180. If you are more than three lines or columns away from the hare, nothing will happen but if you are, checks are made and the hare runs.

Lines 250-280 are a similar thing,

except that they control the policeman, with the main difference that he sometimes does not move.

Lines 300-360 are the checks to see if you have chased a hare into the forest and whether you have been caught. Finally, the GOTO in line 360 loops back to 100, where all the checks are done again.

d Column number for policeman.

e Row number for hare.

f Column number for hare.

g Used as FOR/PLOT index when drawing grass.

i Used to hold row number when drawing forest.

k Used to hold column number when drawing forest.

sc Holds score.

Variables used

- a Row number for saboteur.
- b Column number for saboteur.
- c Row number for policeman.

Subroutines

- 10-15 Print instructions.
- 20-80 Initialisation.
- 100-130 Print saboteur.
- 150-180 Print hare and calculate.
- 250-280 Print cop and calculate.
- 300-360 Caught /won checks.

```
10 PRINT "You (.) must chase t
he hares (.) into the woods (top
-right) to save them from ha
coursing the next day. The cops
(0) are trying to catch you"
```

```
15 PRINT AT 10,0:"CONTROLS: c
ursor keys", AT 12,0:"Press any
key to start": PAUSE 0: CLS
20 LET a=21: LET b=16: LET c=0
: LET d=0: LET sc=0
25 PAPER 7: INK 4
30 FOR g=0 TO 255 STEP 3: PLOT
g,0: DRAW 0,175: NEXT g
60 FOR j=0 TO 7: FOR k=22 TO 3
1: PRINT AT j,k: INK 4:"*": NEX
T k: NEXT j
80 LET e=INT ( RND *22): LET
f=INT ( RND *30)
100 PRINT AT a,b: OVER 1:" "
```

```
110 LET a=a+( INKEY#="6")-( IN
KEY#="7")
115 IF a>21 THEN LET a=21
120 LET b=b+( INKEY#="8")-( IN
KEY#="5")
125 IF b>31 THEN LET b=31
130 PRINT AT a,b: INK 2: OVER
1: " "
150 PRINT AT e,f: OVER 1:" "
160 IF ABS (a-e)>3 THEN GO TO
165
161 IF a>e THEN LET e=e-1
```

```
162 IF a<e THEN LET e=e+1
165 IF e>20 THEN LET e=20
166 IF e<1 THEN LET e=1
170 IF ABS (b-f)>3 THEN GO TO
175
171 IF b>f THEN LET f=f-1
172 IF b<f THEN LET f=f+1
175 IF f>30 THEN LET f=30
176 IF f<1 THEN LET f=1
180 PRINT AT e,f: INK 3: OVER
1: " "
250 PRINT AT c,d: OVER 1:"0"
255 IF RND >.5 THEN GO TO 277
260 IF a>c THEN LET c=c+1
265 IF a<c THEN LET c=c-1
270 IF b>d THEN LET d=d+1
275 IF b<d THEN LET d=d-1
280 PRINT AT c,d: OVER 1: INK
1:"0"
300 IF a=c AND b=d THEN GO TO
2000
350 IF e<8 AND f>21 THEN GO TO
500
360 GO TO 100
500 BEEP .1,10: BEEP .15,12: LE
T sc=sc+1: GO TO 80
2000 INK 0: PRINT AT 10,9: FLAS
H 1:"YOU'RE NICKED!": BEEP .1,5:
BEEP .3,-5:
2010 PRINT AT 12,0:"But before
your arrest you saved":sc: hare
s from a horrible death": STOP
```




BEGINNER

SAFARI

GUIDE your cage around Africa collecting wild animals. At the beginning of the game you can enter the number of animals you wish to round up. Once you have caged all the animals you are told how long you needed to do so.

Safari was written for the 16K Spectrum by Gary Blake of Woodhouse, Notts.

```

1 GO SUB 200
2 LET T=0: LET A=0: LET B=0
3
4 INPUT "HOW MANY ANIMALS ? "
5 CLS
6 IF N>100 THEN GO TO 4
19 FOR Y=1 TO N
40 PRINT AT (RND *20), (RND
*31); "C "
50 BEEP .009,-10
70 NEXT Y
85 LET T=T+1
90 LET A=A+(INKEY$="6")-(IN

```

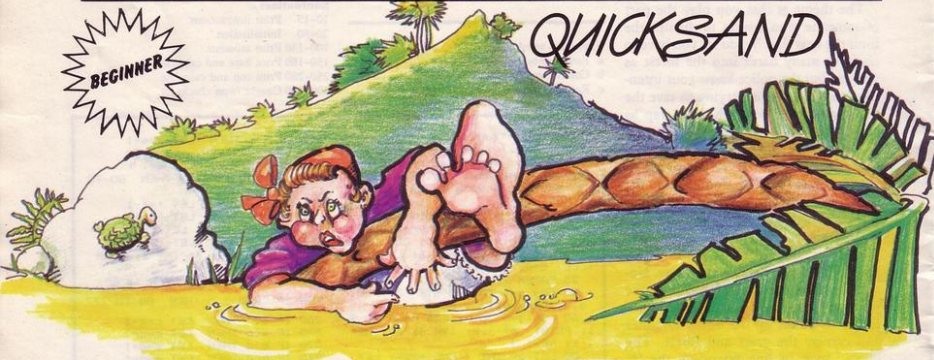
```

KEY$="7")
100 LET A=A+(A<0)-(A>1)
110 LET B=B+(INKEY$="8")-(IN
KEY$="5")
120 LET B=B+(B<0)-(B>30)
130 PRINT AT A,B;"AB"
132 BEEP .03,1
135 PRINT AT A,B;" "
140 IF INKEY$="1" THEN GO TO
161
150 GO TO B0
161 IF T<70 THEN PRINT AT 10,
6; FLASH 1;"WELL DONE ! TIME="
T
162 IF T >= 70 THEN PRINT AT
10,6; FLASH 1;"OH DEAR ! TIME="
17
165 FOR P=1 TO 500: NEXT P
170 CLS : GO TO 1
200 PAPER 4: BORDER 4: INK 2: C
LS
210 PRINT AT 0,13; FLASH 1;"SA
FARI"
220 PRINT AT 5,2;"GUIDE THE CA
GE ROUND AFRICA TRAPPING WILD A
NIMALS.FIRST ENTER THE NUMBER OF
ANIMALS WANTED."
230 PRINT AT 10,4;"S=LEFT": AT
11,4;"B=DOWN": AT 12,4;"T=UP":
AT 13,4;"B=DOWN": AT 14,4;"1=TO
FINISH GAME (WHEN ALL ANI
MALS ARE COLLECTED)"
250 RESTORE : FOR N=0 TO 7: REA
D R: POKE USR "A"+N,R: NEXT N
260 DATA BIN 1111111, BIN 101
01010, BIN 10101010, BIN 101010
0, BIN 10101010, BIN 10101010, B
IN 10101010, BIN 11111111
270 FOR N=0 TO 7: READ R: POKE
USR "B"+N,R: NEXT N
280 DATA BIN 11111110, BIN 101
01010, BIN 10101010, BIN 101010
0, BIN 10101010, BIN 11111110
290 FOR N=0 TO 7: READ R: POKE
USR "C"+N,R: NEXT N
300 DATA BIN 10010000, BIN 011
00000, BIN 10010010, BIN 0110111
1, BIN 01111111, BIN 10101111, B
IN 10100001, BIN 0110010
310 RETURN

```

BEGINNER

QUICKSAND



WALK AROUND the island avoiding the quicksand which appears suddenly. Treading on a patch of quicksand will result in instant death. One hundred points are gained for every step you take.

Quicksand was written for the 16K ZX-81 by Richard Papworth of Limekilns, Fife.

```

1 DEFN "QUICKSAND"
2 NLS
3 PRINT "QUICKSAND"
4 RAND
5 LET S=0
6 PRINT AT 14,0;" "
7 AT 2,0
8 FOR X=0 TO 10
9 PRINT "X";TAB 12;" "
10 NEXT X
11 LET L=INT (RND*11)+1
12 LET R=INT (RND*11)+3
13 PRINT AT R,L
14 IF PEEK (PEEK 16399+256*PEE
K 16399)=128 THEN GOTO 190
15 PRINT "R";AT R+(RND*(S)-(R
D*(S),L+(RND*(S))) AND PEEK (P

```

```

EEK 16399+256*PEEK 16399)>21
180 LET S=S+100
190 LET AS=INKEY$
190 IF AS<"S" OR AS>"8" THEN GO
TO 130
190 PRINT AT R,L;" "
190 LET L=L+(AS<"S")-(AS>"8")
190 LET R=R+(AS<"S")-(AS>"8")
190 GOTO 90
190 CLS
200 PRINT "YOU SCORED ";S;"POIN
TS"
210 PRINT "END THE GAME IN N"
220 INPUT B$
230 IF B$<"Y" THEN GOTO 2
240 IF B$<"Y" THEN STOP
250 STOP

```


LADDER ATTACK

PREVENT the ladders coming down and picking up your humanoids by hitting them with your bullets. If the ladder hits a humanoid it will take it to the top of the screen. Be careful not to run into the ladder, as doing so will take one of your three lives.

Ladder Attack was written for the 16K Spectrum by Andrew Bradford of Birstall, Leicester.



```

4 GO SUB 8000: GO SUB 9000
5 INK 4: PAPER 0: BORDER 0: C
LS
10 LET a=19: LET b=15: LET b1=
b+1
12 LET m1=0: LET m=0
14 LET sc=0
16 LET l=3
18 LET p=0
46 PRINT AT 0,26;1
48 FOR f=1 TO 30 STEP 3: PRINT
AT 21,f: INK 5;"D": NEXT f
52 PRINT AT 0,2;"000000"
54 PRINT AT 0,8- LEN STR$ sc,
:sc
56 PRINT AT 1,0: INK 7;"BBBBB
BBBBBBBBBBBBBBBBBBBBBBBB"
70 LET e=2: LET e1= INT ( RND
*29)+1
100 IF INKEY$="" THEN LET m
1=1: LET b1=b+1: FOR m=18 TO 2 S
TEP -1: PRINT AT m,b1: INK 5;"R
"
105 PRINT AT a,b1: "A "
110 IF INKEY$="" AND b>2 THE
N LET b=b-1
120 IF INKEY$="" AND b<30 TH
EN LET b=b+1
150 PRINT AT e,e1: INK 7;"E":
BEEP .01,e
160 LET e=e+1
175 IF m1=1 AND e1=b1 AND m<e T
HEN FOR f=5 TO 1 STEP -1: BEEP
.01,f: NEXT f: PRINT AT e-1,e1:
INK 6;"C": FOR f=5 TO 1 STEP -1
: BEEP .01,f: NEXT f: FOR d=e TO
1 STEP -1: PRINT AT d,e1: " ":
AT m,b1: " ": LET m1=0: NEXT d: L
ET sc=sc+10: GO TO 52
180 IF e=19 AND e1=b+1 THEN FO
R f=1 TO 7: PRINT AT a,b+1: INK
f;"C": BEEP .01,50: BEEP .01,51
: BEEP .01,49: NEXT f: LET l=l-1
: PRINT AT a,b1: " ": GO TO 281
190 IF l=0 THEN GO TO 350
200 IF p=10 THEN GO TO 350
250 PRINT AT 0,8- LEN STR$ sc
:sc
255 PRINT AT 0,26;1
280 IF e>= 20 AND ATTR (e+1,e
1)=5 THEN GO SUB 300
281 IF e>= 20 THEN FOR r=21 T
O 0 STEP -1: PRINT AT r,e1: " ":
NEXT r: GO TO 52
290 IF m1=1 AND m>1 THEN PRINT
AT m,b1: " ": NEXT m
295 IF m1=1 AND b1=e1 AND m=e
THEN BEEP .5,0
299 GO TO 100
300 FOR r=21 TO 1 STEP -1: PRIN
T AT r,e1: INK 5;"D": BEEP .01,
r: PRINT AT r,e1: " ": NEXT r
310 PRINT AT m,b1: " ": LET m1=
0
315 LET p=p+1
320 GO TO 52
350 PRINT AT 10,10: INK 5;" GA
ME OVER "
360 FOR x=50 TO 0 STEP -2: BEEP
.01,x: NEXT x
370 IF INKEY$="" THEN GO TO
370
380 CLS: GO TO 10
8000 PRINT " " LADDER ATTACK
K" "
8010 PRINT " " The object of thi
s game "is to prevent the alien
s "from taking human prisoners
" "by destroying their ladders"
8020 PRINT " " CONTROLS " "1-1
eft " "2-right " "0-fire"
8030 PAUSE 0: RETURN
9000 FOR n=144 TO 147: FOR x=0 T
O 7: READ AT POKE USR CHR$ n+x
: a: NEXT x
9010 NEXT n
9100 DATA 16,16,56,56,186,254,14
,6,0
9110 DATA 16,124,16,16,16,16,16
,16
9120 DATA 16,32,19,196,32,10,41,
201
9130 DATA 16,56,84,124,16,56,40,
108
9150 CLS: RETURN

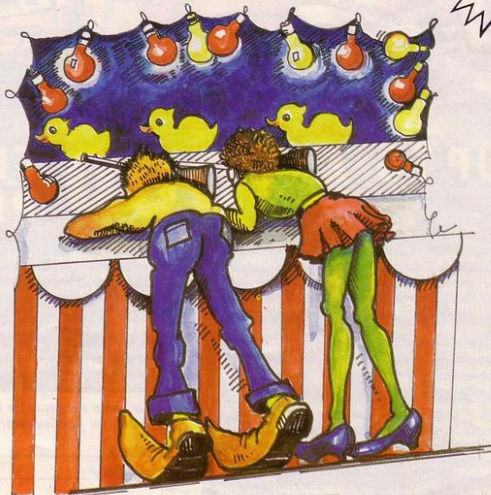
```

SHOOT the targets in the gallery as they move across the screen. If the targets reach the other side three times, the game will end.

Shooting Gallery was written for the 16K ZX-81 by Deepak Damania of London, E10.

SHOOTING GALLERY

BEGINNER



```

1 LET S=0
2 LET L=0
3 LET B=0
4 LET B1=0
5 LET C=13
6 PRINT AT 0,10;"SCORE " :S
7 PRINT AT 0,8;"LIVES " :L
8 PRINT AT 0,10;" "
9 LET A=1
10 PRINT AT 0,C;" "
11 IF INKEY$="" THEN LET C=C-
1
120 IF INKEY$="" THEN LET C=C+
1
130 IF INKEY$="" THEN GOTO 150
140 IF A=29 THEN LET L=L-1
150 IF A=29 THEN GOTO 335
160 IF A=29 THEN GOTO 335
170 IF A=29 THEN GOTO 335
180 IF A=29 THEN GOTO 335
190 GOTO 60
200 FOR f=19 TO 7 STEP -1
210 PRINT AT f,C+8;" "
220 PRINT AT f,C+8;" "
230 NEXT f
240 IF C=1 THEN GOTO 9
250 DET 0,3+10
260 DET 0,3+10
270 PRINT AT 0,A;"SCORE " :S
280 PRINT AT 0,C;" "
290 GOTO 3340
300 PRINT AT B,A;" "
310 LET A=0
320 LET B=B+1
330 PRINT AT B,A;" "
340 GOTO 10
350 IF B=17 THEN PRINT AT B,A;"
"
360 GOTO 4
370 PRINT AT 13,13;"GAME OVER"
400 PRINT AT B,A;" "

```

ARCADE

GAMES THAT FIGHT BACK! NEW RELEASE THE PRIZE



UP TO **£5000** FIRST PRIZE

F The Prize Your mission to discover the innermost chamber of Midas in a huge planetary maze. If successful you could be in with a chance of winning up to £5000! Only the strongest will survive the devious traps set by the guardians, but just imagine what you could do with the prize. . . .

Cassette carries a special £2 discount voucher off your next purchase!

Dealers, please contact us for very special discounts on our games. Phone Orpington 35639.

Programmers. We are looking for high quality m/c games for the Spectrum and Commodore 64 home computers, send them in for evaluation. You have nothing to lose!

All games are for the ZX Spectrum 48K and cost just £5.50 each inc. p.p. VAT etc.

Arcade Software Ltd, Technology House,
32 Chislehurst Road, Orpington, Kent BR6 0DG
Tel: Orpington 35639

A ☐ I enclose a cheque for £ _____ or
B ☐ debit my Barclaycard/Access Account★
C ☐ Name _____
D ☐ Address _____
E ☐ _____
F ☐ _____ SP7
_____★



A Fast-furious racing in this Arcade game for the Spectrum. 'Ponoon' on side B free!



B Funny goings-on deep in a mine. Can you escape the evil in its depths? "Original and fun . . . dexterity needed . . . strategy is also involved" — Games Computing.



C Defuse a bomb hidden on the complex planet, Lattica, before it blows!! " . . . action packed game . . . addictive" — Sinclair user.



D The mobs out to get ya' in this no-holds-barred 25 screen, action-packed game. "Tricky and highly entertaining" — Personal Computing News.

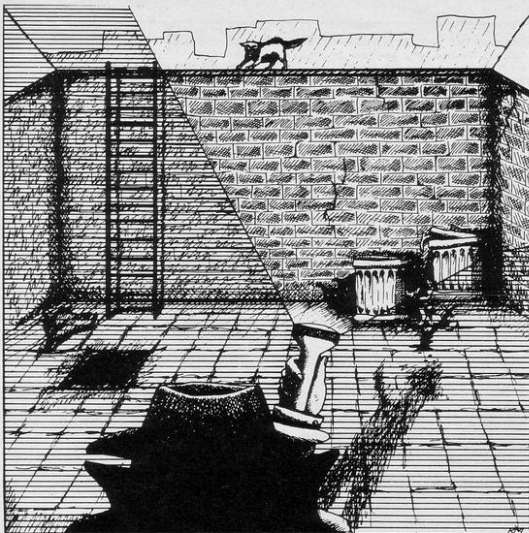


E 50 different screens of mayhem. "A fun game for all ages . . . which I thoroughly enjoyed" — Home Computing Weekly.

DETECTIVE

A MURDER has been committed in your town and it is your job to find the killer and put him or her behind bars, thus ensuring the safety of other residents. You are given the name of the victim, the time and place of the murder, and also the murder weapon. There are 19 suspects and you can choose to name the murderer in three to 40 questions.

Detective was written for the 48K Spectrum by David Pankhurst of Strood, Kent.



```

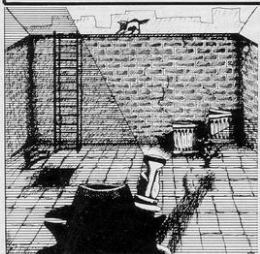
1 POKE 23609,50
2 INPUT "SKILL LEVEL i.e no.
of questions you can ask ?(3-40):"
3 IF sk<3 OR sk>40 THEN GO TO 2
4 INPUT "Town of residence?":
z$
5 RESTORE
6 RANDOMIZE
7 DIM a$(21,19)
10 INPUT "ENTER YOUR NAME":a$(
21)
12 PRINT AT 10,0: INK 2: INV
ERSE 1:"Please wait while a murder
er in "z$:" is occurring"
15 FOR n=1 TO 20
20 READ a$(n)
25 NEXT n
30 DIM s(20): DIM t(20): DIM w
(20): DIM p(20)
35 DIM c(20): DIM cf(20,10)
40 DIM sf(20,10): DIM tf(20,12)
): DIM wf(20,10): DIM pf(20,15)
50 LET goes=0
100 FOR n=1 TO 20
110 LET s(n)=INT ( RND *2): LE
T t(n)=INT ( RND *2): LET w(n)=
INT ( RND *3): LET p(n)=INT (
RND *3)
115 LET c(n)=INT ( RND *3)
120 NEXT n
140 LET vic=INT ( RND *20)+1
200 LET mur=INT ( RND *20)+1
210 IF mur=vic THEN GO TO 200
220 FOR n=1 TO 20
230 IF n=mur THEN GO TO 250
240 IF s(n)=s(mur) AND t(n)=t(m
ur) AND c(n)=c(mur) AND w(n)=w(m
ur) AND p(n)=p(mur) THEN LET s(
n)=INT ( RND *2): GO TO 240
250 NEXT n
300 LET n=mur
310 GO SUB 9500
315 CLS: PRINT "victim: "; INK
2:a$(vic): PRINT "part of town:
"; INK 2:s$(mur):t$(mur)
317 PRINT "murder weapon: "; INK
2:w$(mur)
320 PRINT "location: "; INK 2:p
$(mur)
325 LET hol=INT ( RND *3): LET
ho=INT ( RND *10): LET minl=I
NT ( RND *6): LET min=INT ( RND
*10)
327 IF hol=2 AND ho>4 THEN GO
TO 325
330 PRINT "time of death: "; IN
K 2:hol:ho:":":minl:min
350 FOR n=1 TO 20
360 GO SUB 9500
370 NEXT n
380 PRINT: PRINT: PRINT: PRI
NT: INK 2: FLASH 1:"Press any k
ey"
390 PAUSE 0
400 FOR n=1 TO 21
405 POKE 23692,10
410 PRINT: PRINT
420 BEEP .01,n
430 NEXT n
500 CLS: PRINT AT 10,0:"Quest
ions asked: "; INK 2:goes: PRINT
AT 12,0:"Limit on questions: ";
INK 2:sk
501 INPUT "Do you wish to accu
se someone? (y/n)":f$
502 IF f$="y" OR f$="Y" THEN G
O TO 4000
503 IF f$="n" OR f$="N" THEN G
O TO 505
504 GO TO 501
505 INPUT "who do you want to q
uestion?":q
506 IF q>20 OR q<1 THEN GO TO
505
507 IF q=vic THEN PRINT "THE
VICTIM: GO TO 505
1050 CLS: PRINT AT 1,3:"THE FI
LE OF "; INK 1:a$(q)
1052 GO SUB 7000
1055 PRINT "personal questions:-"
1058 IF q>10 THEN PRINT "1)SIDE
SHE WAS ON 2)UP O
R DOWN TOWN 3)WEAP
ON CARRIED 4)q$
: GO TO 1062
1060 PRINT "1)SIDE HE WAS ON
2)UP OR DOWN TOWN
3)WEAPON CARRIED
4)q$
1063 PRINT "5)COLOUR OF HAIR": P
RINT: PRINT: PRINT
1064 INPUT "option?":op
1065 IF op>5 OR op<1 THEN GO TO
1064
1066 GO TO 1066+op
1067 PRINT "I was on the ";s$(q)
: GO TO 1075
1068 PRINT "I was ";t$(q): GO TO
1075
1069 PRINT "I carry ";w$(q): GO
TO 1075
1070 GO TO 2000+2*( INT (q/6))
1071 PRINT "my hair is "c$(q)
1075 LET goes=goes+1
1080 IF goes>sk THEN GO TO 3000
1085 PRINT AT 21,0: INK 1: INVE
RSE 1:"press a key to continue":
PAUSE 0
1090 GO TO 500
2000 INPUT "SUSPECT CONCERNED?":
su: IF su>20 OR su<1 THEN GO TO
2000
2001 PRINT:p$(su): GO TO 1075
2002 PRINT "the killers hair is
";c$(mur)
2003 GO TO 1075
2004 IF mur<11 THEN PRINT "MALE
": GO TO 1075
2005 PRINT "FEMALE": GO TO 1075
2006 GO TO 2000
3000 CLS: PRINT INK 2:a$(mur);
INK 0:" DID IT "
3050 PRINT: PRINT "YOUR ENQUIR
ES TOOK TOO LONG "
3055 PRINT: PRINT: IF mur>11 T
HEN PRINT "now she has left the
country a free person": GO TO,
3080
3065 PRINT "now he has left the
country a free person"
3080 PRINT: PRINT "you have bee
n demoted": PRINT: PRINT: INK
2:"better luck next time "; INK
2:"P.C "a$(21)

```

```

3090 PRINT AT 21,0; INK 1; INVE
RSE 1;"Press any key to try agai
n"
3100 PAUSE 0
3105 CLS
3110 GO TO 1
4000 CLS : PRINT "OKAY WHO IS IT
?": PRINT : PRINT "(suspect's nu
mber)"
4010 INPUT gu
4020 PRINT : "SO YOU THINK IT IS
": INK 2; a$(gu)
4030 PRINT : PRINT : PRINT : PRI
NT
4040 PRINT "WELL "; INK 1; a$(mur
); INK 0; "DID IT"
4050 IF gu=mur THEN GO TO 450
0
4060 PRINT "WHAT A DETECTIVE YOU
ARE
CONVICTING THE WRONG
PERSON"
4065 PRINT AT 15,0;"You have be
en demoted . Your career
is ruined "; INK 2;"P.C ";a$(21
)
4068 PRINT AT 20,0; INK 1; INVE
RSE 1;"Press a key to redeem you
rself"

```



```

4070 PAUSE 0
4080 CLS
4090 GO TO 1
4500 PAUSE 0; CLS
4510 FOR n=1 TO 20
4520 LET i= INT ( RND *50); LET
sfq= INT ( RND *2)
4530 IF sfq=1 THEN LET i=-1
4540 BEEP .2,i
4550 NEXT n
4600 PRINT AT 10,0;"CORRECT THE
TOWN OF "; INK 2; s$: INK 0; "CA
N FEEL SAFE AGAIN WITH THE KILL
ER "; INK 1; a$(mur); INK 0; "BEH
IND BARS": PRINT "it took you ";
goes; questions"
4601 PRINT AT 21,0;"Press a key
": PAUSE 0
4602 PRINT AT 21,0;"
4605 CIRCLE 100,40,20
4606 CIRCLE 92,50,3: CIRCLE 108,
50,3: PLOT 89,30: DRAW 3,5: DRAW
16,0: DRAW 3,-5
4607 PRINT AT 14,9; OVER 1; INK
3;"(6*ig4:ig5)": PAUSE 30: PRIN
T "AT 17,9; INK 3; OVER 1;"(7*ig
5)": PAUSE 30: PRINT AT 16,9; I
NK 3; OVER 1;"(7*ig5)": PAUSE 30
: PRINT AT 17,9; INK 3; OVER 1;
"(7*ig5)": PAUSE 30: PRINT AT 1
8,9; INK 3; OVER 1;"(6*ig1:ig5)":
4608 PRINT "Have a vacation "; I
NK 2; INVERSE 1;"CHIEF DETECTIVE
"; INK 0; INVERSE 0;a$(21); PRI
NT INK 1; INVERSE 1;"Press a ke
y to have another go"
4609 PAUSE 0
4610 FOR n=1 TO 100
4620 LET x= INT ( RND *21); LET
y= INT ( RND *31)
4630 LET ink= INT ( RND *7); LET
j= INT ( RND *30); LET sfq= INT
( RND *2)
4635 IF sfq=1 THEN LET j=-j
4640 PRINT AT x,y; INK ink;"(ig
B)"

```

```

4650 BEEP .01,j
4660 NEXT n
4670 CLS
4680 GO TO 1
7000 GO SUB 7100+( INT (q/6))
7020 RETURN
7100 LET q$="WHEREABOUTS OF SUSP
ECTS": RETURN
7101 LET q$="COLOUR OF MURDERER'
S HAIR": RETURN
7102 LET q$="SEX OF MURDERER": R
ETURN
7103 LET q$="WHEREABOUTS OF SUSP
ECTS": RETURN
9000 DATA "BASHER BRIGGS","TEA L
EAF TOM","PSYCHO JONES","FORGER
FRED","SHOTGUN SID","SLIPPERY SA
M","MANIAC SMITH","MICKY MOBB",
"CRUSHER CUMMINS","RAZOR RULER",
"STRANGLER SUE","DEMENTED DOREEN
","CUT THROAT CAROLE","BETTY'CHO
PPER JONES","SADISTIC SUE","LILY
'LIONESS' KIDD","FELINE FREDA","K
ILLER IVY","POISON PENNY","SPECT
RUM SUZIE"
9500 LET s$(n)="EAST SIDE,"
9510 IF s$(n)=1 THEN LET s$(n)="
WEST SIDE,"
9520 LET t$(n)="UP TOWN"
9530 IF t$(n)=1 THEN LET t$(n)="
DOWN TOWN"
9540 LET w$(n)="A REVOLVER"
9550 IF w$(n)=1 THEN LET w$(n)="
A KNIFE"
9560 IF w$(n)=2 THEN LET w$(n)="
AN AXE"
9570 LET p$(n)="THEATRE"
9580 IF p$(n)=1 THEN LET p$(n)="
DOCKS"
9590 IF p$(n)=2 THEN LET p$(n)="
FOOTBALL GROUND"
9600 LET c$(n)="BLONDE"
9610 IF c$(n)=1 THEN LET c$(n)="
BLACK"
9620 IF c$(n)=2 THEN LET c$(n)="
BROWN"
9630 RETURN

```

POUND signs flash on the screen below the headings lost, single, double and treble. You must try to accumulate as much money as possible by pressing "0" when the pounds are under double or treble. If you finish below lost you will lose all your money.

Cash Accumulator was written for the 1K ZX-81 by M Gibbs of Sneinton Dale, Notts.

```

1 SAVE "0"
2 LET HT=0
3 LET R=0
4 PRINT "LOST SINGLE DOU
5 TREBLE"
6 LET M=1
7 PRINT AT 4,0;"£ ";M;"HIGH
8 HT
9 PRINT AT 1,R*8+2;" "
10 LET R=INT (RND*4)
11 PRINT AT 1,R*8+2;"££££"
12 IF INKEY$="0" THEN GOTO 100
13 GOTO 40
14 LET M=M*R
15 IF M>HT THEN LET HT=M
16 IF M<>0 THEN GOTO 30
17 PRINT AT 4,0;"
18 GOTO 20

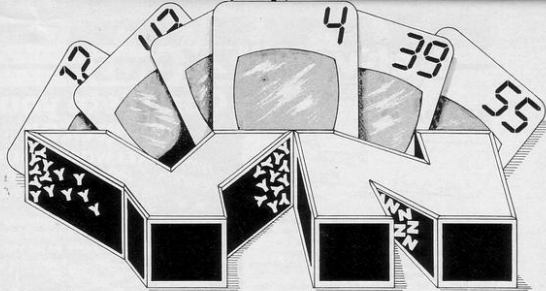
```

CASH ACCUMULATOR



THINK of a number between one and 63 and remember it. The computer will then show you six cards with different numbers on them. Each time a card is shown you must press 'Y' or 'N', depending on whether or not the number of which you thought is on that particular card. Once that has been done, the computer will work out the number of which you thought.

Think of a Number was written for the 16K Spectrum by John Betty, aged 15, of Leyland, Lancashire.



THINK OF A NUMBER

```

1 BORDER 1: PAPER 1: INK 7: C
LS
2 FOR p=1 TO 6: READ a: POKE
USR "A":p,a: NEXT p: FOR S=0 TO
7: READ O: POKE USR "S":S,O: N
EXT S: DATA 8,8,56,120,164,189,7
2,48: DATA 0,96,252,26,37,253,18
,12: 60 SUB 2000
3 LET S=0
9 LET q#="IS YOUR NUMBER ON T
HIS CARD? (Y/N)?
"
10 DIM a$(250): DIM b$(250): D
IM c$(250): DIM d$(250): DIM e$(
250): DIM f$(250)
20 READ a$: READ b$: READ c$:
READ d$: READ e$: READ f$
30 CLS: PRINT TAB 10: INK 6:
INVERSE 1:"NUMBERS GAME":
40 PRINT AT 10,4: INK 7:a$: P
RINT AT 2,4: INK 7: INVERSE 1:"
CARD 1": BORDER 1
45 PRINT AT 20,3: INK 7:"IS Y
OUR NUMBER ON THIS CARD ?": AT 2
1,15: (Y/N)
46 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+2: PAUSE 10: BE
EFP 1,55: GO TO 49
47 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10: BE
EFP 1,30: GO TO 49
48 GO TO 46: GO TO 47
49 CLS: PRINT AT 10,4:b$: PR
INT AT 2,4: INK 7: INVERSE 1:"C
ARD 2": PRINT AT 20,3;q#: BORDE
R 2
50 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+4: PAUSE 10:
BEEP 1,55: GO TO 55
51 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10:
BEEP 1,30: GO TO 55
53 GO TO 50: GO TO 51
55 CLS: PRINT AT 10,4: INK 7
:c$: PRINT AT 2,4: INK 7: INVER
SE 1:"CARD 3": PRINT AT 20,3;q#
: BORDER 3
56 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+1: PAUSE 10:
BEEP 1,55: GO TO 60
57 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10:
BEEP 1,30: GO TO 60
58 GO TO 56: GO TO 57
60 CLS: PRINT AT 10,4: INK 7
:d$: PRINT AT 2,4: INK 7: INVER
SE 1:"CARD 4": PRINT AT 20,3: I
NK 7;q#: BORDER 4
61 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+16: PAUSE 10:
BEEP 1,55: GO TO 65
62 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10:
BEEP 1,30: GO TO 65
63 GO TO 61: GO TO 62
65 CLS: PRINT AT 10,3: INK 7
:e$: PRINT AT 2,4: INK 7: INVER
SE 1:"CARD 5": PRINT AT 20,4: I

```

```

NK 7;q#: BORDER 5
66 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+32: PAUSE 10:
BEEP 1,55: GO TO 70
68 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10:
BEEP 1,30: GO TO 70
69 GO TO 66: GO TO 68
70 CLS: PRINT AT 10,3: INK 7
:f$: PRINT AT 2,4: INK 7: INVER
SE 1:"CARD 6": PRINT AT 20,3: I
NK 7;q#: BORDER 6
73 IF INKEY$="Y" OR INKEY$
="y" THEN LET n=n+8: PAUSE 10:
BEEP 1,55: GO TO 80
74 IF INKEY$="N" OR INKEY$
="n" THEN LET n=n+0: PAUSE 10:
BEEP 1,30: GO TO 80
76 GO TO 73: GO TO 74
80 CLS: BORDER 1: PRINT AT 1
4,4: INK 7:"I BET YOUR NUMBER IS
": FLASH 1:n
81 INPUT "AM I CORRECT (Y/N) "
:Y$
82 FOR U=1 TO 25: IF Y$="Y" OR
Y$="y" THEN PRINT AT 18,3: FL
ASH 1: INK 7:"BRAINS IS THE NAME
": BEEP 1,1: RND *U: NEXT U
83 FOR T=25 TO 1 STEP -1: IF Y
$="n" OR Y$="N" THEN PRINT AT
18,1: INK 7:"WELL !": INK 5: FL
ASH 1:"WE": INK 7: FLASH 0:" ARE
NOT ALL PERFECT.": BEEP 1,T: N
EXT T
90 PAUSE 50: PRINT AT 20,5: I
NK 4: FLASH 1:"PRESS A KEY": PAU
SE 0: CLS
100 PRINT AT 6,6: INK 5:"PRESS
DESIRED KEY"
105 PRINT AT 10,4: INK 4: FLAS
H 1:"(R)": INK 5: FLASH 0:" RUN"
: AT 12,4: INK 4: FLASH 1:"(S)":
INK 5: FLASH 0:" SAVE": AT 14,4
: INK 4: FLASH 1:"(E)": INK 5: F
LASH 0:" END"
106 IF INKEY$="R" OR INKEY$
="r" THEN BEEP 1,55: CLS: RUN
: GO TO 106
109 IF INKEY$="S" OR INKEY$
="s" THEN CLS: BEEP 1,55: PRI
NT AT 19,2: INK 5:"YOU ARE SAVI
NG": FLASH 1:"NUMBER GAME": SAV
E "N/GAME" LINE 1: GO TO 109
111 IF INKEY$="E" OR INKEY$
="e" THEN BEEP 1,55: RANDOMIZE
USR 0: GO TO 111
112 GO TO 106: GO TO 109
1000 DATA "2 3 6 7 10 11 14 15
18 19 22 23 26 27 30
31
34 35 38 39 42 43 46
47
50 51 54 55 58 59 6
2 63"
1001 DATA "4 5 6 7 12 13 14 15
20 21 22 23 28 29 30

```

```

31
36 37 38 39 44 45 46
47
52 53 54 55 60 61 62
63"
1003 DATA "1 3 5 7 9 11 13 15
17 19 21 23 25 27 29
31
33 35 37 39 41 43 45
47
49 51 53 55 57 59 61
63"
1004 DATA "16 17 18 19 20 21 22
23
24 25 26 27 28 29 30
31
48 49 50 51 52 53 54
55
56 57 58 59 60 61 62
63"
1005 DATA "32 33 34 35 36 37 38
39
40 41 42 43 44 45 46
47
48 49 50 51 52 53 54
55
56 57 58 59 60 61 62
63"
1006 DATA "8 9 10 11 12 13 14 15
24 25 26 27 28 29 30
31
40 41 42 43 44 45 46
47
56 57 58 59 60 61 62
63"
2001 FOR q=1 TO 61: PRINT AT 1,1
0: INK q:"NUMBER GAME": BEEP 1,1
q: NEXT q: NEXT q
2005 PRINT AT 8,2: INK 7:"YOU M
UST THINK OF A NUMBER": AT 9,2:
" BETWEEN 1 AND 63.": AT 11,2:"WH
EN YOU HAVE THOUGHT OF A ": AT 1
2,2:"NUMBER, THEN CHECK THE 6 CA
RDS": AT 13,2:"IF YOUR NUMBER IS
ON THE CARD,": AT 14,2:"THEN PR
ESS 'Y.'": AT 16,2:"IF YOUR NUMB
ER IS NOT": AT 17,2:" THEN PRESS
": AT 18,2:"N."
2006 PAUSE 170: FOR R=17 TO 2 ST
EP -1: PRINT AT 20,R: INK 4: BR
IGHT 1:" AS---PRESS A KEY": BEE
P 1,1: R: NEXT R: PAUSE 0: CLS
2010 PRINT AT 4,4: INK 5: BRIGH
T 1:"THINK OF A NUMBER BETWEEN":
AT 6,6: INK 6:"L AND 63"
2011 PAUSE 50: PRINT AT 9,10: I
NK 6: FLASH 1:"O.K.": PRINT AT 1
4,14: INK 5: FLASH 1:"Y/N": PRIN
T AT 11,2: INK 7:"HAVE YOU THOU
GHT OF A NUMBER?": IF INKEY$="Y
" OR INKEY$="y" THEN GO TO 20
20:
2012 IF INKEY$="N" OR INKEY$
="n" THEN CLS: GO TO 2000
2013 GO TO 2011: GO TO 2012
2020 CLS: RETURN

```

Kelwood ZX-tras

COMPUTING

BACKPACKS



Six versions of this indispensable unit complete your computer. All have SAVE/LOAD and ON/OFF switching and a housing for the transformer. Compatible with interface one. Ideal for use with cased keyboards.

Ref BP1 - Fully variable sound amp - 3 x 13 amp sockets switch and neon indicator - cable and plug £27.50

Ref BP2 - as BP1 but no sockets, cable and plugs. Has room to fit your own Duraplug sockets £19.50

Ref BP3 - as BP1 but no sound £21.50

Ref BP4 - as BP1 but no sound or sockets £13.05

Ref BP5 - ZX81 version inc. sockets, mains switch, neon, cable and plug £20.85

Ref BP6 as BP5 but no cable or sockets £12.85

MICROSTATION

17 square ft for above plus computer and tape
Ref MS £7.50

WOBBLE STOPPER

STOPS ZX81 RAM-PACK WOBBLE
Flat Ref SW £5.25 Tilted Ref STW £5.25
Extra long for printer - Flat Ref LW £5.75 Tilted Ref LTW £6.75

Complete your computer

with the **KELWOOD SOUND**
segregational POWER BASE
has all the 'basic bits' that Sinclair left off.

- Fully adjustable sound amplification
- LOAD/SAVE switch ● Angled stand
- ON-OFF re-set switch



Does not take up any extra space ● All wires included ● Saves wear and tear on connections ● Gives out distinct click with each key depression ● Amplifies all sound on program and on cassette ● Does not need batteries ● Does not interfere with inside of Spectrum or any other add-ons ● No soldering required, simply plug in REF SPB1 £19.90
Standard Power Base without sound
SPECTRUM REF PBS1 £13.50 ZX81 REF PBZ1 £13

K. BOARD, real Spectrum Keyboard
Ref KB £28.50

COOL-IT UNIT

Takes the heat out of your computer
Lets your Spectrum or ZX81 run much cooler



Separate Cool-it Unit
ZX81 Ref SC £11.65 Spectrum Ref SC £11.85

Cool-it units built into other Kelwood add-its

Power Base (Spectrum) Ref PBS1 £18.50 ● Power Base (ZX81) Ref PBZ1 £18.35 ● Sound Power Base (Spectrum) Ref SPB1 £25.00 ● Back Pack 1 Ref BP1 £32.55 ● Back Pack 2 Ref BP2 £24.55 ● Back Pack 3 Ref BP3 £28.55 ● Back Pack 4 Ref BP4 £18.60 ● Back Pack 5 Ref BP5 £26.90 ● Back Pack 6 Ref BP6 £18.90 ● Wearsaver (Spectrum) Ref WSS £16.00 ● Wearsaver (ZX81) Ref WSZ1 £15.80

WEAR SAVERS

● Cuts out wear and tear on plugs and sockets ● Switching for SAVE/LOAD and 9 volts ON/OFF ● Simply plugs in
Spectrum Ref WSS £9.95
ZX81 Ref WSZ £9.75

Name _____

Address _____



Access
Visa No. _____

CREDIT CARD

HOTLINE TEL:

(0709) 63242

8am-10pm

QUANTITY _____

REF _____

AMOUNT _____

Items under £10 plus 60p P&P

Items over £10 plus 95p P&P

All prices include VAT

TOTAL

ENCLOSED

PERSONAL CALLERS WELCOME WE ALSO STOCK SOFTWARE!

KELWOOD COMPUTING Downs Row, Moorgate, Rotherham

HIRE SPECTRUM SOFTWARE

CHOOSE FROM OUR VAST RANGE

FREE 26 page CATALOGUE with full details of our range of over 280 different programs for the ZX SPECTRUM. All hired with the consent of the publishers. Whether you prefer to ZAP aliens, get lost in an ADVENTURE game, EDUCATE your children, CALCULATE the family finances or COMPILE machine code programs WE HAVE THE RIGHT TAPES FOR YOU TO HIRE.

FAST SERVICE

We stock up to 60 manufacturers' original copies of each tape (over 3000 tapes in stock), and can normally despatch your tapes the day we receive your order, and we always use first class post.

LOWEST PRICES

We believe our prices are the lowest of any library, yet we offer the LARGEST range of titles. Hire up to 3 tapes at a time, for 2 weeks, for only £1.07 each (inc. VAT & p&p).

FREE TAPE HIRE

For a limited period, we will send your first tape (your choice) FREE, so join our library now. You can't afford NOT to! If you've tried another library and are wary of our claims send a stamp and we'll gladly send you a copy of our catalogue - we're confident you'll join when you see it!



**NATIONAL
SOFTWARE
LIBRARY**

200 Mulgrave Road,
Cheam, Surrey SM2 6JT

I enclose cheque for £6.00 for a LIFE MEMBERSHIP and I understand that my first tape hire will be FREE. If, within 28 days, I'm not delighted with your service I'll refund my membership fee.

Name _____

Address _____

SP 7

SUPER-LEAGUE



For use on
48K
SPECTRUM

		W	D	L	F	A	Pts
1	Ipswich T.	16	6	8	41	20	54
2	Liverpool	16	6	8	61	31	56
3	Birmingham	16	6	8	15	10	48
4	Nottingham						
5	Southampton						
6	Leicester						
7	Nottingham						
8	Wolves						
9	Tottenham						
10	Sunderland						
11	Q.P.R.						
12	Watford						
13	Everton						
14	Norwich						
15	Coventry						
16	Aston Utd						
17	Man. City						
18	Luton T.						
19	U.S.A.						
20	Arsenal						
21	Sheff. Wed.						
22	Stoke C.						

46 minutes

Delgish Liverpool 2 Everton 1

● Full 22-team League

● 42-match season

● Full 11-a-side match action

● Scale 90-minute game

● On-screen commentary showing current score, name of player in possession, time played

● Individual player skills

● League table and results on screen and printer

● Save season to date on tape

Be a top tactician and watch your team play in the safety of your home!

Also form any league of 22 teams and pick your own players!

£6.50
(inc. p.&p.)

Order direct from

CROSS SOFTWARE(P),
36 Langford Crescent,
Barnet, Herts, EN4 9EH

Also available from selected stores in the London area (including Virgin Megastore, Oxford Street)



SNOOKER

ONE OF the first things to do when playing **Snooker** is to make a note of the instructions. Although the game contains no graphics, it is very interesting and the players can choose the number of frames to play. If

the asterisk finishes beneath an "R" it means you have potted a ball and you then have a chance to play a colour.

Snooker was written for the 16K ZX-81 by M Gibbs of Sneinton Dale, Notts.

```
1  SAVE "SNOOKER"
2  LET X=7
10  DIM A$(2,12)
20  LET B$="RED      YELLOWGREEN B
ROWN BLUE  PINK  BLACK FINISH"
30  DIM F(2)
35  GOSUB 5000
40  PRINT "      INPUT NAMES (12 LET
TERS MAXIMUM)"
50  INPUT A$(1)
60  INPUT A$(2)
70  PRINT A$(1),A$(2)
80  PRINT "      HOW MANY FRAMES
?"
90  INPUT FR
100  LET C$="RYGBGBPB"
110  LET FW=0
120  LET Q=0
140  DIM W(2)
200  CLS
210  LET AG=0
220  DIM S(2)
230  LET T=INT (RND*2)+1
240  LET RE=15
245  LET W(1)=1
250  IF RE>0 AND X<>1 THEN GOTO
270
260  LET W(1)=INT (RND*10)+1
270  LET B=0
280  LET U=1
355  IF RE=0 THEN GOTO 500
380  GOTO 1000
600  DIM Z(12)
610  FOR I=1 TO 12
620  LET Z(I)=INT (RND*14)+1
630  NEXT I
635  FOR I=1 TO 6
640  PRINT AT 7+I,24;"      "
645  PRINT AT 7+I,15;I+1;"      "
650  PRINT AT 7+I,15;I+1;"      "
655  NEXT I
660  INPUT X
670  LET W(2)=Z(X-1)
675  LET W(1)=Z(X+5)
677  LET U=2
680  GOTO 1100
800  IF RE=0 THEN LET X=1
810  LET X=X+1
820  LET RE=-1
830  IF X=6 THEN GOTO 4000
1050  IF RE>0 THEN LET X=1
1100  FOR I=1 TO 15
1150  IF I=15 THEN PRINT AT 18,30
;"F"
1200  IF I>W(U) AND I<>15 THEN PR
INT AT 18,I+2;"0"
1250  IF I<=W(U) THEN PRINT AT 18
,I+2;C$(X)
1270  NEXT I
1280  GOSUB 7000
1290  PRINT AT 19,0+2;"      "
1400  LET Q=INT (RND*15)+1
1450  PRINT AT 19,0+2;"      "
1500  IF INKEY$="0" THEN GOTO 200
0
1510  IF INKEY$="F" THEN GOTO 400
0
1550  PRINT AT 19,0+2;"      "
1580  GOTO 1400
2000  IF Q=W(U) THEN GOTO 2100
2010  PRINT AT 10,0;"Pot ";B$(X
-1)*5)+1 TO X*5)
2020  LET B=B+X
2030  PRINT "BREAK=";B
2040  IF X=1 THEN LET RE=RE-1
2050  IF X=1 THEN GOTO 500
2055  LET U=1
2060  IF RE<=0 THEN GOTO 500
2070  GOTO 1000
2100  IF Q<>15 THEN GOTO 3000
2150  LET FW=X
2200  IF FW=4 THEN LET FW=4
2400  PRINT AT 15,0;"FOWL ";FW;"
AWAY"
2500  FOR I=1 TO 50
```

```

2600 NEXT I
2700 PRINT AT 15,0;"
3000 LET S(T)=S(T)+B
3100 PRINT AT 10,0;"
3200 PRINT "
3300 IF T=1 THEN GOTO 3420
3400 IF T=2 THEN LET T=1
3410 GOTO 3450
3420 LET T=2
3450 IF AG=1 THEN RETURN
3500 IF FW=0 THEN GOTO 250
3500 LET S(T)=S(T)+FW
3550 LET AG=1
3700 LET FW=0
3800 GOTO 250
4000 LET S(T)=S(T)+B
4010 IF S(1)>S(2) THEN LET F(1)=
F(1)+1
4100 IF S(1)<S(2) THEN LET F(2)=
F(2)+1
4120 GOSUB 7000
4140 FOR J=1 TO 50
4145 NEXT J
4150 IF F(1)=INT (FR/2)+1 OR F(2)
)=INT (FR/2)+1 THEN GOTO 5000
4200 IF S(1)<>S(2) THEN GOTO 200
4300 LET X=5
4350 LET W(1)=INT (RND*4)+1
4400 GOTO 800
5000 CLS
5100 PRINT A$(1); " "; F(1), A$(2);
" "; F(2)
5200 STOP
5300 PRINT "**** SNOOKER : HOW T
O PLAY ****"
6010 PRINT "
6020 PRINT " TO STOP THE "*" " P
RESS
6030 PRINT " TO END THE FRAME P
RESS
6040 PRINT "
6050 PRINT "IF YOU FINISH UNDER
THE "0" IT IS THEN YOUR OPPON
ENTS TURN
6060 PRINT

```

```

6070 PRINT "IF YOU FINISH UNDER
THE "*" " YOU HAVE POTTED THE BA
LL AND IT IS YOUR TURN TO GO FO
R A COLOUR
6080 PRINT "YOU MAY THEN SEE 2
YELLOW 11 5"
6090 PRINT
6100 PRINT " IF YOU GO FOR THE Y
ELLOW YOU INPUT 2, YOU THEN HA
VE 11 YELLOWS AND IF YOU POT THA
T, 6 REDS"
6110 PRINT
6120 PRINT " IF YOU FINISH UNDER
THE "*" " YOU HAVE FOULED AND G
IVE THE PENALTY, YOUR OPPONE
NT MAY ASK YOU TO PLAY AGAIN BY
PRESSING "A" OR NOT BY PRESSIN
G "0"
6200 IF INKEY$="" THEN GOTO 6200
6400 CLS
6500 RETURN
6900 STOP
7000 PRINT AT 5,0;"
7050 PRINT AT 0,30;" "
7100 IF RE<0 THEN PRINT AT 0,9;F
(1); " FRAMES "; F(2); TAB 25;"REDS
"; RE
7200 IF RE<=0 THEN PRINT AT 0,9;
F(1); " FRAMES "; F(2); TAB 25; B$(1
(X-1)*6)+1 TO X*6)
7300 PRINT TAB 3; A$(1), A$(2)
7400 PRINT TAB 8; S(1); TAB 18; S(2)
7500 PRINT AT 5,0; A$(T); " TO PLA
Y"
7600 IF AG=1 THEN GOTO 8000
7700 RETURN
8000 PRINT AT 5,20;"PLAY AGAIN?"
8100 IF INKEY$="A" THEN GOTO 850
0
8200 IF INKEY$="0" THEN GOTO 900
0
8300 GOTO 8100
8500 GOSUB 3300
9000 LET AG=0
9100 GOTO 7000

```



YOU ARE on a test flight in a new fighter aircraft when the controls malfunction. The aircraft flies into a valley and you must guide it through the narrow passages, avoiding the walls.

After loading the program RUN 100 and enter the following data: 33, 123, 64, 62, 231, 219, 254, 203, 103, 202, 149, 64, 203, 87, 194, 150, 64, 52, 52, 53, 42, 14, 64, 6, 0, 78, 201. Lines 100-103 can then be deleted.

Test Pilot was written for the 16K ZX-81 by Michael Hicken, of Cardigan, Dyfed.

TEST PILOT

```

1 REM AAAAAAAAAAAAAAAAAAAAAA
AAAA(=+#++<?)?:$2$?:?)<+#++
$?)?)
3 FOR I=VAL "0" TO VAL "9"
4 PRINT TAB LEN A$;A$
5 NEXT I
6 POKE 16507,CODE "c"
7 FOR U=VAL "0" TO LEN A$
8 FOR I=VAL "0" TO CODE "INKE
YS"
9 SCROLL
10 PRINT AT 0,PEEK 16507;
11 IF USR 16514=128 THEN GOTO
20
12 PRINT "U";AT 9,PEEK (I+1654
13 NEXT I
14 IF U=VAL "3" THEN LET A$="■"
15 IF U=LEN A$ THEN LET A$="■"
16 NEXT U
20 PRINT I+U;CODE "PI"
100 FOR I=16514 TO 16540
101 INPUT A
102 POKE I,A
103 NEXT I

```


SUPERCHESS 3.0

ABSOLUTELY GUARANTEED ABLE TO CONSISTENTLY BEAT ALL OTHER SPECTRUM CHESS PROGRAMS

*Declared 'Champion of Champions' by Computer Chess Magazine Chess by Computer Chess (May 1984)

*Achieved overall 50% against graded human players at its local Chess Club!

Superschess 3.0 has been developed to bring you the strongest chess program yet for the Spectrum computer. At the tournament level Superschess 3.0 has a look-ahead of five to seven ply (moves) in the middle game, and ten to twelve ply in the end game. This gives Superschess 3.0 a substantial advantage against other chess programs and promises the experienced player an interesting and challenging game of chess. Unlike other chess programs, Superschess 3.0 is not just a brute-force calculator, but employs artificial intelligence techniques to allow deeper searching along the main lines of play.

FEATURES:

- 10 levels—all play within tournament time limits.
- First level made especially easy for beginners.
- Easy to use—help menus provided.
- Recommended move option.
- Change sides and level during game.
- Self play mode.
- Set up/change position.
- Technical information—how the program 'thinks'.
- Programs internal score for position displayed.
- Number of evaluated positions displayed.
- Library of opening moves.
- Select your own colour scheme for graphic board display.
- Solve mating problems—up to mate in four.



SUPERCHESS 3.0
CP software

48K SPECTRUM—Price £8.95

BRIDGE PLAYER

PLAY AN ENTIRE GAME OF BRIDGE AGAINST YOUR SPECTRUM WITHOUT GETTING IN THREE FRIENDS FOR THE PURPOSE
UPDATED VERSION NOW AVAILABLE

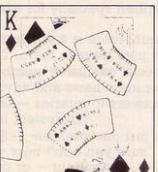
Dealing—the program shuffles, deals and sorts the cards to produce randomly dealt hands. An almost infinite number of hands are therefore possible, with all kinds of distributions.

Bidding—is in the familiar ACOL system, including Stayman and Blackwood conventions. You bid your hand while the Spectrum bids the other three hands.

Card Play—you play from your own and dummy's hands, which are displayed as they would be at the bridge table, with the program playing the other two hands.

Scoring—at the end of each hand the score is calculated, including honours, slam and rubber points. Both the old and new scores are displayed in the usual manner.

Replay—at the end of each hand, all four hands can be displayed and, if desired, the hand replayed.



BRIDGE PLAYER
CP software

**48K SPECTRUM
BRIDGE PLAYER—£8.95**

An ideal complement to the Bridge Player Program:

Bridge Tutor (Beginners)—£5.95
Bridge Tutor (Advanced)—£5.95

SPECIAL OFFER:

**Bridge Player and both
Bridge Tutors—£18.95**

Available at most good computer stores.

DELIVERY:

UK—prices include VAT and postage & packing.

EUROPE—add 80p per program.
ALL OTHER PLACES—for all mail add £2 for the first program and 50p for each subsequent program. Surface delivery add 80p per program.

CP software

DEALER HOTLINE:

0895 31579

Send SAE for Catalogue.

CP SOFTWARE, Dept SP7

2 Glebe Road, Xbrdridge

Middlesex UB8 2XD

See us at Wembley

AIRBASE INVADER

Non-existent, non violent, satirical, sprite graphic, all-action arcade adventure.

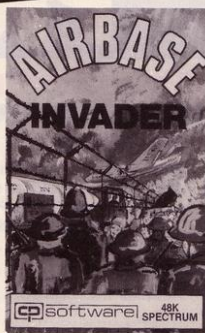
Featuring:

- Iron Lady
- Ronnie Raygun
- Old Bill
- Squaddies
- Gutter-press photographers
- Peace women

—and maybe the end of the world!

Compatible Kempston and
Compact Joysticks

48K SPECTRUM—£5.95



SUPERCODE

—for 16K and 48K Spectrum

100+ ROUTINES

MICRODRIVE VERSION NOW AVAILABLE

This is a superior machine code tool kit with one hundred machine code routines that are relocatable for use in your own BASIC and/or machine code programs, the combined user friendly BASIC program, 48K Spectrum only, gives easy access to all routines: • Index of routines. • Call up details of each routine including all information required to tailor the routine to your needs. • Demonstration of how the routine works under software control, the demonstration is repeatable. • Save and verify individual routines. • Comprehensive user guide.

1. Block Memory Insert	24. Sci-Fi Character Set	47. Wait-Key
2. Block Line Delete	25. Memory Available	48. Strings to Upper Case
3. Chr\$ Swap	26. Line Renumber	49. Strings to Lower Case
4. Chr\$ Scramble	27. Uni-Note Sound Gen	50. Program to Upper Case
5. Super-Remember	28. Dual-Note Sound Gen	51. Program to Lower Case
6. 2 Byte Converter	29. Uni-BEEP Simulator	52. Confuse
7. Dec- Hex Converter	30. Multi-BEEP Simulator	53. Clarify
8. Hex- Dec Converter	31. Screen Fill	54. Screen Saver
9. Remail Condenser	32. Screen Store	55. Screen Overprint
10. On Error Goto	33. Screen Exchange	56. Screen Invert
11. On Break Goto	34. Protect Program	57. Clear All
12. Free-Scroller	35. Block Copy	58. Ink Change
13. Non-Destructive Lines	36. Contract	59. Paper Change
14. Border Effects	37. Expand	60. Flash On
15. Screen Search	38. Expand Rem	61. Flash Off
16. Variables Search/List	39. Append	62. Bright On
17. 24-Line Printing	40. Count Program	63. Bright Off
18. Star Draw	41. Tape Header Reader	64. Screen Print
19. Flash Switch	42. Address	65. Random Number Generator
20. Bright Switch	43. Checker-Board	
21. Paint Shape	44. Remove Colours	
22. Record Sound	45. Display Memory	
23. Replay Sound	46. Hex Loader	

Routines 66-100: Screen routines

SUPERCODE £9.95

Plus for 48K SPECTRUM unless otherwise stated:		
FLOATING POINT FORTH WITH EDITOR	£13.95	SUPERCHESS II (Lynx) £8.95
INTEGHER FORTH	£9.95	SUPERCHESS II (Jupiter Ace) £8.95
SUPERCHESS II	£4.95	PINBALL WIZARD
SUPERCHESS I (16K ZX81)	£4.95	(48K Spectrum) £5.95
16K SUPERCHESS (16K Spectrum)	£6.95	PINBALL WIZARD
REVERSI	£6.95	(Commodore 64) £5.95
		DRAGHTS £5.95
		BACKGAMMON £5.95
		SNAIL LOGO (Turtle Graphics) £9.95
		GOLFING WORLD £17.95
		SPECTRUM EXTENDED BASIC £9.95

WANTED:

Interesting programs for Spectrum,
Commodore 64 and QL

ESPECIALLY WANTED:

QL/Commodore 64 Bridge Player

ANY OFFERS?

SINCLAIR PROJECTS

Sinclair Projects broadens its horizons

Subscription Form

Mail to: ECC Publications Limited: 196-200 Balls Pond Road, N1 4AQ. Yes — I'd like to subscribe to Sinclair Projects (6 issues — price £6.60 including P&P). I enclose a cheque for £
Please charge my credit card:

Card name Number

Name

Address

Signature Date

NB This offer applies to UK subscribers only. Overseas rates available on request.

More hardware news

In-depth analysis of peripherals

Top interviews

Plus the regular projects and advice to help you get the most from your Sinclair Spectrum or ZX-81

**THE COMPLETE SINCLAIR
HARDWARE COMPANION**

DO NOT MISS IT

A world of activity for you and your Sinclair



Whether you have a ZX80, ZX81 or Spectrum — we can show you there's far more to your Sinclair than you ever thought possible. That's the active, lively world of **Sinclair User** — the first magazine written specially for everyone who owns or uses a Sinclair

computer. Every month, there is a whole range of games, business ideas and bright new ways to learn. There is the Sinclair User Club, with special exclusive member offers. There are technical facts, development news and advice, plus hints from other users and answers to queries — in fact everything you need to be an interested, informed and **ACTIVE** Sinclair user.

There's just one problem — **Sinclair User** sells out fast! So make sure you don't miss your copy: order it today from your newsagent — or complete the subscription form below and we will send it to you direct, every month.

Mail to: ECC Publications Limited: 196-200 Balls Pond Road, London N1 4AQ Yes — I'd like to subscribe to
Sinclair User (12 issues — price £12.00 including P&P) I enclose a cheque for £
Please charge my credit card: Card name Number
Name Address
Signature Date
N.B. This offer applies to U.K. subscribers only. Overseas rates available on request.

World-beating computer thrown on scrap heap

LIKE many others, I was caught by the computer revolution and managed to persuade my parents to buy me a ZX-81 in March, 1982. Last Christmas I was given a Spectrum as well but now, after the joy of 48K and a reasonable keyboard, I find it extremely difficult to return to the primitive ZX-81 with its wobbling RAM pack.

The only trouble is that it seems impossible to sell on the second-hand market, although it is still working well and has had no faults. Are people still buying them? What can I do to sell it? Or should I put it down?

I must say, however, that all the time I have been using a computer I have been buying *Sinclair User* and *Sinclair Programs* and, for the money, I think they are the best. One of my favourite games was *Treasure Hunt* for the 16K ZX-81, which was published long ago. I intend to convert it with a more advanced version for my Spectrum.

Thank you again for a great magazine. Keep it up.

**J Freeman,
Wakefield,
West Yorkshire.**

Meet your match

IN THE APRIL edition of *Sinclair Programs* I saw a program called *Matches* for the ZX-81. Probably like many other people I considered it a good game, so decided to program it into my computer. When I had finished programming I ran the program and, after doing so many times, I found it was impossible to beat the computer, because the computer always takes away two of the 23 matches, leaving 21.

Then the person playing takes away either one, two or three of the matches. After

your turn the computer then does the same but always takes away such a number that both numbers added together make a total of four matches which have been taken away. It repeats that action every round until you find that you are forced to take away the last match. In the description of the game it said that it was not easy to win but I have found that to be untrue — it is impossible to win.

**Jason Goodwin,
Shaw, Olham.**

Alphabet record

IN *The Best of Sinclair Programs*, Spring/Summer, 1984 there was a program for the 16K ZX-81 called *Alphabet Timer*. The published record was 179 units. The first time I tried it I scored 564 units but the next time 109 units. I should be interested to know if anyone has beaten my score.

**Duncan Cayless,
Banbury, Oxon.**

Squashed ants

I AM writing to tell you about my highest score on *Ant Raid*, published in the April edition of *Sinclair Programs*. I managed to squash 56 ants before the ants ate my fruit. I would like to know if anyone has beaten my score.

**Stephen Tunstall,
Leyland,
Lancashire.**

Best programs

I ENJOY going to my local newsgroup every month for my copy of *Sinclair Programs*. I started collecting the magazine at the beginning of the year. I found it had as many ZX-81 as Spectrum programs, which is unusual as well as fair. I had missed some programs in other issues so I was glad to see *The Best of Sinclair Programs*

where I found some of the programs I had missed. I would also like to wish *Sinclair Programs* good luck.

**Paul Taylor,
aged 12,
Shoreham-on-Sea,
Sussex.**

● *The Best of Sinclair Programs*, containing 100 of the best programs we published last year, is available from newsgroups now for £2.25.

48K problems

I AGREE that you have some exciting programs but when I bought my first edition, the April, 1984 issue, to my dismay I found of the 30 programs you printed only three were for the 48K Spectrum.

There are those of us who own them, although to look in your magazine you would not think so. I am sure I am writing for other 48K Spectrum owners who would appreciate it if you would print the same number of programs for the ZX-81 and both Spectrums.

**Kenneth Bridge,
Bedworth,
Warwickshire.**

● *All Spectrum programs printed in Sinclair Programs will run on the 48K model. Those which are described as being for the 48K machine will run only on the 48K.*

Drum analysis

I AM WRITING because I need a tuning instrument urgently for guitars or drums. I play tablas, a set of drums which require fine tuning. My ear is not, as yet, sufficiently developed.

In the March, 1984 issue of *Sinclair Programs* I saw a program called *Voice Sound Analyser* which would be satisfactory except that it is for a Spectrum and I have a ZX-81. Can the program be converted to run on a ZX-81? My machine is a 16K.

I think your magazine is the best for price against quality; all the other magazines are twice your price and I am amazed that they sell.

**Colin Green,
Portsmouth, Hampshire.**

● *If any readers have converted Voice Sound Analyser for the ZX-81 please let us know and we can pass the information to the writer.*

Jet set poke

FOR ALL Jet-Set Willy fans, here is a simple POKE to make Willy indestructible. All you have to do is type MERGE " " before LOADING. When the OK message appears type:

35 POKE 35899,0 (enter)
Then type RUN and start the tape. When the full program has loaded, Willy will be indestructible. If, however, you manage to get the program working so that Willy is being killed continually, CAPS SHIFT and BREAK will take you back to the music and triangle at the beginning of the program.

My record is 63 items collected.

**Dave Shortman,
Hull, East Yorkshire.**

Polish user

I AM SORRY about my poor English but I have not been to England for 37 years, since I was a Polish soldier. I hope that you can help me to improve my knowledge of the ZX-81 and English.

Could you send me listings, cassettes and books published for the 1K ZX-81? In exchange I can send you sets of Polish stamps. Do you have any philatelists among your readers? Can you also send me listings for games?

I hope that you can send me interesting programs for the 1K ZX-81. I can also speak Italian, Polish and German.

**Joszf Piotr Mrowec,
wl. Anlota nr 4,
Skr poczt. 2205,
40 936 Katowice Zalaze,
Poland.**

● *If any reader is interested in contacting him, his address is given above.*

Searching and sorting on Sinclair computers

IF YOU have ever wondered what computers are really good at doing, wonder no longer — the answer is searching and sorting. They are so good at it that about 40 percent of all data processing on big computers is taken up by those two tasks alone.

Coming down to earth, humble ZX users can still make use of searching and sorting in our programs and many commercial programs we buy incorporate search and sort routines, even if we do not realise it.

The types of data we search and sort are numerous — pieces of text in word processing programs, records and fields in a databases, and so on. As for sorting, the situation is the same — there are so many applications it is unbelievable. Games, too, can use search and sort techniques; the program of the month, **Mad Jumper**, uses a small sort routine to ensure the top five scores and names are kept in order.

The problem for the user of the routines is which to use. There are so many algorithms for searching and sorting that complete volumes have been written on the subject.

The reason behind this plethora is that each routine is good for a particular task. Taking sorting as an example, there are routines which are good for sorting small sets of numbers, large sets, medium-sized sets, even numbers in general. You name it and there is bound to be a search or sort routine to cater for your needs.

It should be noted that all searching and sorting should be carried-out on a data structure, in our case the array. It

Computers can examine data more quickly and efficiently than humans can. David Janda shows how you can make use of this ability in your programs.

can be numeric or string, with single or multiple dimensions. Searching or sorting can also be performed on strings and, to a degree, on memory locations but that is best done in machine code.

The two main reasons why searching/sorting should be done on an array are because it is a convenient means of

Program 2.

```
10 REM STRING SEARCH
20 PRINT "ENTER STRING"
30 INPUT S$
40 PRINT "ENTER STRING TO BE
   SEARCHED FOR"
50 INPUT T$
60 FOR P=1 TO (LEN S$-LEN T$+1)
70 IF S$P TO (P+LEN T$)-1)=T$
   THEN PRINT "FOUND"
80 NEXT P
```

storing data and individual pieces of data can be referenced easily.

Program one is a sequential search of a numeric array. You can see that the array A is filled with the numbers from one to 10. You then enter the number you wish to look for and the program searches the array for the specified number which is held in T. Notice that the search line is in line 110, where the content of each element in array A is looked at.

Program two demonstrates how a string can be searched. Because the string-handling on Sinclair machines is very powerful, it allows us to examine any portion of the string to be searched. So string S\$ contains the main text and string T\$ contains the text to be searched for.

The business end of the program is the loop at lines 60-80. The loop index P is used as a pointer on the main string S\$. As P is moved on to the next element — character — of the string, the target string T\$ is compared to the main string from position P to P+ the length of T\$. If you have grasped that, you will understand why the length of the FOR...NEXT loop is not equal to

the length of S\$. That is best demonstrated by an example:

If S\$ contains THIS IS A STRING and T\$ contains STRING, the length of S\$ is 16 and T\$ is 6. When the loop index P reaches 11, the situation looks like this:

```
THIS IS A STRING
      STRING
```

That is satisfactory and we have a match but if the loop boundary is extended to the length of S\$, we might have a situation like this:

```
THIS IS A STRING
      STRING
```

An error would be reported because we have tried to reach beyond the length of string S\$. Program two will not allow that to happen.

The last search to be dealt with is one of the fastest searches. To understand how it works, imagine you are looking for a telephone number for John Smith. You open the telephone directory and hold with one hand all the S section. Divide the S section in half and look at the name on the top. If it is greater than Smith you divide the section between the beginning and the opened section. If it is less than Smith, you divide the remaining section in half. That is repeated until you will finally reach the name you want.

The method is called a binary chop and it works by shrinking the area to be searched constantly as the search progresses. It is so efficient that if we could dimension an element of one million DIM A(1000000) it would need to look at no more than 20 entries before the item was found.

Program 3.

```
10 DIM A(1000)
20 FOR C=1 TO 1000
30 LET A(C)=C
40 NEXT C
50 PRINT "ENTER NUMBER TO
   FIND"
60 INPUT T
70 LET F=1
80 LET L=1000
90 LET M=INT ((F+L)/2)
100 IF T<A(M) THEN LET L=M-1
110 IF T>A(M) THEN LET F=M+1
120 IF F>L THEN GOTO 200
130 IF T=A(M) THEN GOTO 90
140 PRINT "FOUND "T
150 STOP
200 PRINT "FAILED TO FIND "T
```

Program 1.

```
10 DIM A(10)
20 PRINT "ENTER 10 NUMBERS"
30 FOR C=1 TO 10
40 INPUT A(C)
50 NEXT C
60 PRINT "ENTER A NUMBER THAT
   YOU"
70 PRINT "IS IN THE ARRAY"
80 INPUT T
90 REM THE SEARCH
100 FOR C=1 TO 10
110 IF A(C)=T THEN GOTO 200
120 NEXT C
130 PRINT "THAT NUMBER IS NOT
   PRESENT"
140 GOTO 60
200 PRINT "FOUND "T;" IN
   POSITION "A(C)
```


Program 4.

```

10 LET P=10
20 LET X=0
30 LET T=0
40 LET Z=0
50 DIM A(10)
60 FOR C=1 TO 10
70 LET A(C)=INT(RND*65535)
80 PRINT AT C+5,10;A(C)
90 NEXT C
100 LET S=0
110 LET Z=Z+1
120 PRINT AT 21,20;"PASS ";Z
130 FOR C=1 TO 9
140 LET X=X+1
150 PRINT AT 21,0;"COMP ";X
160 IF A(C)<=A(C+1) THEN GOTO 360
170 PAUSE P
180 PRINT AT C+5,10;"(5* sp)"; AT C+5,16;A(C)
190 PAUSE P
200 PRINT AT C+6,10;"(5* sp)"; AT C+6,4;A(C+1)
210 PAUSE P
220 PRINT AT C+5,16;"(5* sp)"; AT C+6,16;A(C)
230 PAUSE P
240 PRINT AT C+6,4;"(5* sp)"; AT C+5,4;A(C+1)
250 PAUSE P
260 PRINT AT C+6,16;"(5* sp)"; AT C+6,10;A(C)
270 PAUSE P
280 PRINT AT C+5,4;"(5* sp)"; AT C+5,10;A(C+1)
290 PAUSE P
300 LET T=A(C)
310 LET A(C)=A(C+1)
320 LET A(C+1)=T
330 LET S=S+1
340 LET Y=Y+1
350 PRINT AT 21,10;"SWAPS ";Y
360 NEXT C
370 IF S=1 THEN GOTO 100

```

Enter and run program three which is set up with 1,000 numbers. To see the numbers being examined include the extra line 135 PRINT A(M).

The difficulty with many search algorithms including the binary chop is that the data to be searched must already be in an ordered form. There are so many sorts, each good for their own purpose, that it would be impossible to mention them all. Here is a small selection. One of the most common sorts is the bubble sort which is used extensively in data processing. Why it is used is beyond me, as it is one of the slowest and most inefficient sorts. The only good thing about it is that it is easy to implement and that, I suppose, is part of the reason for its popularity.

Pairs of numbers are considered and if one is greater than the next they are swapped. That happens until the end of the list is reached. Note that the list is not sorted yet and the program has to go through the list again until no more swaps are performed in a pass.

The data following represents one pass of the list. Note that the 21 has been shuffled to the right but the 9 has moved only one place to the left.

Enter and run program four, which not only sorts the five numbers but also

displays them bubbling up — hence the name — in order. To change the speed alter the value of P at line 10.

```

10 21 16 5 12 9
10 16 21 5 12 9
10 16 5 21 12 9
10 16 5 12 21 9
10 16 5 12 9 21

```

There are many other sorts — heap sort, insertion sort, quicksort and so on. Of them all, there is one which is very popular among micro users because it is fast.

Program 5.

```

10 DIM A(100)
20 FOR C=1 TO 100
30 LET A(C)=INT(RND*1000)
40 NEXT C
50 REM THE SORT
100 LET S=100
110 LET S=INT(S/2)
120 IF S=0 THEN GOTO 240
130 LET PL=100-S
140 LET J=1
150 LET I=J
160 LET L=1+J
170 IF A(I)<A(L) THEN GOTO 210
180 LET T=A(I)
182 LET A(I)=A(L)
185 LET A(L)=T
190 LET I=I+S
200 IF I>=1 THEN GOTO 160
210 LET J=J+1
220 IF J>P THEN GOTO 110
230 GOTO 150

```

Program five is the ever-popular Shell-Metzner sort, one of the fastest. The operation is complex, so I will not explain it. Note that the bigger the list, the better the Shell-Metzner performs.

Program six is strange in that it sorts things in a random order. That may seem strange but it never repeats any number, so we can use it to shuffle a pack of cards.

Enter and run program six, which first will print the names of the cards in order and then shuffle the pack and print it again, but in its shuffled state. I leave it to you to determine how it works.

Program 6.

```

10 REM CARD SHUFFLE
20 REM CREATE CARDS
30 DIM A(52)
40 FOR A=1 TO 52
50 LET A(A)=A
60 GOSUB 250
70 NEXT A
80 REM SHUFFLE CARDS
90 LET B=52
100 LET C=0
110 LET R=INT(RND*B)+C
120 IF B=0 THEN GOTO 200
130 LET F=A(B)
140 LET A(B)=A(R)
150 LET A(R)=F
160 LET B=B-1
170 LET C=C+1
180 GOTO 110
190 REM DISPLAY CARDS
200 PRINT
210 FOR A=1 TO 52
220 GOSUB 250
230 NEXT A
240 STOP
250 IF A<14 THEN LET S$="CLUBS"
260 IF A>13 AND A<27 THEN LET S$="DIAMONDS"
270 IF A>26 AND A<40 THEN LET S$="SPADES"
280 IF A>39 THEN LET S$="HEARTS"
290 LET T=INT(A/13)+1
300 IF A=1 OR A=14 OR A=27 OR A=40 THEN LET N$="ACE"
310 IF A=11 OR A=24 OR A=37 OR A=50 THEN LET N$="JACK"
320 IF A=12 OR A=25 OR A=38 OR A=51 THEN LET N$="QUEEN"
330 IF A=13 OR A=26 OR A=39 OR A=52 THEN LET N$="KING"
340 IF T>3 THEN LET T=A-39: GOTO 380
350 IF T=3 THEN LET T=A-26: GOTO 380
360 IF T=2 THEN LET T=A-13: GOTO 380
370 IF T=1 THEN LET T=A
380 IF T>1 THEN LET T<11 THEN LET N$=STR$(T)+" "
390 PRINT N$;"OF";S$;" ";A)
400 LET S$=""; LET N$=""; LET T=0
410 RETURN

```

Wanted — racing driver, pilot, prime minister . . .

Simulation programs are fun and educational. Among a selection of excellent games, many of them best-sellers, we find one leads the field.

SPEND YOUR TIME playing *Manic Miner* or *The Hobbit* and, although you may gain remarkable proficiency on the Spectrum keyboard, the chances are that you will not feel any better-equipped for any real-life experiences of wandering beneath the streets of Surbiton, or controlling the movements of a recalcitrant dwarf. Spend your time playing simulation games and not only will you enjoy some of the best games on the market but also you will benefit from the educational qualities of simulation games.

Whether your dream has always been to bring the government to its knees, form a successful rock band, become a millionaire or simply to get away from the city and take up sport in the countryside, there is a simulation game designed to help you achieve your dream in the comfort of your home. Simulation games put you into the place of another person, a jet pilot for example, provide some background information and instructions, and then allow you to make all the decisions.

Unrivalled success

In the field of simulation games nothing has arrived in the *Sinclair Programs* office to rival *The Forest* — Phipps Associates, 48K Spectrum. It is a simulation of that sport seemingly least likely ever to be played on a microcomputer, orienteering. Orienteering is essentially a crosscountry race across difficult terrain, to which has been added the extra dimension of navigational problems. Contestants are supplied with a map, on which is marked a number of points, each of which must be visited in order.

Points are often separated by lakes or dense forest, so the quickest route is not necessarily a straight line but can be found only by a skilled map reader. An

added complication is that the map, and the area, do not include roads, footpaths or streams, and so map and compass must be used throughout.

Graham Relf, author of *The Forest* has, amazingly, made it possible to orienteer with a Spectrum and, more incredibly still, has fitted 11,200 sq. km. of map into the program. When the game is loaded, the scene is the start of the course, on the edge of the town and the forest. Objective number one lies around 100 metres to the north-east and is marked by a flag on arrival. The map shows that a direct route would not be too difficult; most of it is downhill and the forest through which a straight path would run is not too dense.

It is difficult, however, to run even 100 metres through trees while trying to



follow a compass bearing, so the booklet accompanying the program suggests that beginners first aim for the nearby lake and then for the small flag in the middle of the forest.

The screen shows the view six metres in front of the player. It may be lake, tall trees, small trees, a town, or a selection of other types of terrain. Ten terrain symbols are shown on the screen at any time. Turning to right and left can be done by means of left and right cursor keys. Turning to face the way you have come is achieved by pressing the downward cursor key, and movement forward by pressing the upward cursor key.

Each step you take is roughly one metre long although, as in real life, your steps will vary in length and you will move with much more difficulty uphill through thick trees than when running downhill across grass. A sight set in front of you shows where the ground directly ahead of you would be if the ground were completely level. That gives a clear indication as to whether you are running uphill or downhill.

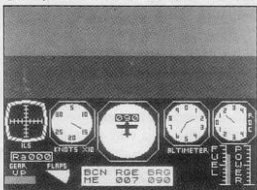
Running on a compass bearing is not possible with a computer. It is possible to estimate on which bearing you

should walk, and for how far, but most players will find that a ruler and protractor make life easier.

The forest is an extremely good educational aid for anyone wishing to teach or learn map reading, compass bearings, or simply the use of ruler and protractor. The map is very accurate and there is an immense sense of achievement to be gained from finding a flag after navigating through a kilometre of forest. The program also gives a clear idea of how contour lines marked on a map relate to hills and valleys. Experienced players will find that by following the curve of a hill as they run along, they can follow contour lines on the map, which can be very helpful when crossing large areas of forest.

Best-selling programs

Better-known simulation games are the flight simulation programs *Flight Simulation* — 48K Spectrum and 16K ZX-81, Sinclair Research — and *Fighter Pilot* — 48K Spectrum, Digital Integration — both best-selling programs. *Flight Simulation* allows the player to take off, fly and land an aeroplane. The aircraft controls are complex and so the long instructions should be read in full before any attempt at flying is made. Despite that, first flights tend to be unmitigated disasters. Experience quickly makes the controls and instru-



ment panels sufficiently comprehensible to make taking-off and flying possible.

The most difficult aspect of *Flight Simulation* is landing. There are 13 control keys to remember with which the aircraft can be controlled and even experienced simulator pilots tend to find that number is around 12 controls too many when trying to reduce height and speed at the appropriate rate, while keeping on course and keeping the air-

craft level. Fighter Pilot gives the player a bigger range of options than Flight Simulation. The player can choose between being a trainee, squadron instructor or ace pilot. Flight, take-off and landing can be practised with or without the effect of cross-winds and turbulence. As can be deduced from the program title, other options include not more complicated routes or aerial manoeuvres but the opportunity to kill as many other pilots like yourself as you wish.

While both Fighter Pilot and Flight Simulation are excellent simulation programs, the wider range of options open



to the player in Fighter Pilot provide a more lasting challenge.

Checkered Flag — Sinclair Research, 48K Spectrum — is also a well-known example of a simulation game. The screen display is of the driver's view from a racing car. Before the game begins the driver can choose between three cars and a variety of the most famous racing circuits in the world.

As in a real car, there are a variety of controls from which to choose, although in a real car drivers are not expected to steer, accelerate, brake and change gear all with their hands. Moving at high speed is hair-raising enough, without the added difficulty of having to search for the brake quickly among a group of very similar Spectrum keys.

Not a novel experience

As a simulation the game is not as successful as flight simulation programs, partly because the large number of its imitators make the idea of driving a car on your Spectrum seem stale. Driving a car or being driven in a car is not a novel experience for Spectrum owners and so differences from real life are much more apparent than when trying to fly an aeroplane.

1984 — Incentive Software, 48K Spectrum — gives the player control of the Government of Britain from 1984 onwards. All decisions on Government spending and allocation of resources are made by the player. Radical changes in spending will not be accepted by the

computer and budgetary changes which leave certain departments short of money will be queried by the computer before they are accepted.

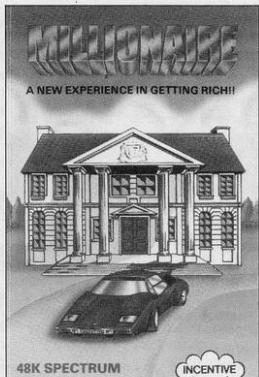
Management game

1984 states that it is "a game of Government management" and so computer owners wishing to become involved in other aspects of British political activity, or to overthrow the Government and set up a different political system, will not find it suited to their needs.

The cassette insert includes a complex diagram, demonstrating how different sections of the economy are linked and what effects budgetary changes in any area will have. Students of economics or government may find it a helpful game to play, although it is necessarily simplistic in some areas.

It is a complex and well-thought-out simulation game. People using it for educational purposes, though, will find that the help of an experienced teacher would be necessary to indicate the problems which necessarily will arise when the player attempts to run the country on a microcomputer.

Rather more frivolous is **Millionaire** — Incentive, 48K Spectrum. The game



involves running a software company and the aim is to make a million pounds. It is fast-moving, easily comprehensible but necessarily repetitive with clear graphics on-screen. Decisions must be made as to which kind of software should be written, how much should be produced, how it should be advertised, and how it should be marketed.

As profits increase, the size of your

house, shown at the beginning of each round, will increase from being a small terrace to a large mansion.

Production of cassettes cannot exceed a certain level each month, so once you have made all the correct decisions and are selling out of stock each month there is no chance of becoming an overnight success. Another problem with the game is the irritating over-use of a luck element throughout, so that making the same decisions two games running will produce very different results.

Over-use of chance is always a flaw in a simulation game and in Millionaire it gives rise to the suspicion that success would be obtained as quickly by throwing dice to make decisions.

Busking in the subway

Along the same lines as Millionaire is **It's Only Rock 'n' Roll** — Virgin, 48K Spectrum. The aim is to make it as a rock star, "making it" being defined in this case as earning a million pounds and acquiring three status symbols. From busking in the subway it is possible to rise to tours of Japan and the U.S., number one hit records and sold-out concerts at Wembley Stadium.

All that takes time, however, and Virgin judges rock stars to be over the hill within five years of the start of the game, or fewer if you choose a more difficult level. It is necessary, therefore, to take a few risks to achieve high popularity levels as quickly as possible. It is disappointing that once you have made it in the set time there is no winning display — you continue the game until you are over the hill and then finish.

Very similar sieges

A similar lack of any appropriate ending is apparent in **Jerico 2** — Elephant Software, 48K Spectrum. The game can be considered with **Fort Apache** — Contrast Software, 16K Spectrum — as, except in theme, the two games are remarkably similar in all respects. In both the player leads a siege, in one case on an Apache fort, in the other on the city of Jerico.

Battles must be fought, weapons and equipment built and supplies fetched. Not the most accurate of simulations and not the most involving, either. Success can be obtained on Jerico 2 within half an hour, though Fort Apache is slightly more difficult.

Despite the similarities of the games, Fort Apache is better than Jerico 2, as it makes full use of the ZX-81 facilities.

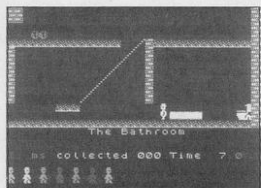
Surbiton millionaire jet sets on to screen

IN THE BEGINNING was **Manic Miner**, the game with the potential to break up more friendships and families than any others. Obsessed players, with eyes for nothing but Miner Willy and the mines beneath Surbiton, played all day and all night long.

Now there is **Jet Set Willy**, which is more fun, more enjoyable and more addictive than almost any game on the market. It is so addictive that not only did our review department play it for hours but members of our circulation and advertising departments remained after hours to play.

Willy, having made his fortune in the mines beneath Surbiton, must clean up his mansion after a wild party before his housekeeper will allow him to go to bed. Each room contains an obstacle course and various enemies to be avoided. Superbly animated characters fill each room, each posing a threat to the miner. The game is also a form of maze, for some rooms may be reached only by a long and tortuous route. Other rooms, such as the wine cellar and the yacht, need very exact timing to make escape possible.

At first sight the pace of the game is sedate. Willy strolls along, bounces gently upwards, and reaches for the litter strewn round the house. Meanwhile the security guards, demons and revolving peardrops move relentlessly onwards

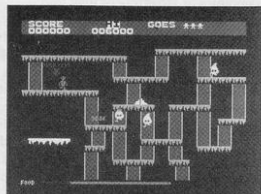


and the hapless player hammers at the keys.

There can be months of enjoyment from this original and brilliant game. Any Spectrum owner willing to sacrifice sleep and peace of mind should rush out and buy it immediately.

Jet Set Willy is produced for the 48K Spectrum by Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool. It costs £5.95.

This month we focus on the exploits of hero Willy after his mining experience and on some of the best and worst new Spectrum games.



The Snowman

THE SNOWMAN — 48K Spectrum, £5.95 — is not a new concept in computer games. It is, though, a brilliant example of a fusion of the best elements from some games already on the market, with several new ideas. The result is an attractive, gentle game which will appeal to all kinds of computer owner.

The central character must be moved round an ice structure, made up of several levels linked by ladders. On the first level the aim is to build a snowman by collecting snow from the ice structure and carrying it to the appropriate site. The main difficulty is to move the wandering flames, which will melt any snow which is being carried. If you fall from the ice structure or run out of energy you simply drift down to bed at the bottom of the screen.

An easy way of amassing points is to remain on the first level and not collect snow but instead collect the food and gifts which appear at intervals. The food supplies energy, the gifts supply points, and the only way of losing is to fall off the ice structure.

More daring players will prefer to complete their snowman as soon as possible to move to the next level. There are four levels with the same layout and they are then repeated with a

different layout. The second level involves collecting the snowman's features, the third his clothes, and the fourth ice cubes to prevent him melting. Those levels are made more difficult by the sleep monsters which send you to sleep on contact and which can be defeated only by collecting alarm clocks. Quicksilver, 13 Palmerston Road, Southampton SO1 1LL.

The Pyramid

THE PYRAMID, by Fantasy Software, sends its players searching through the 15-level pyramid in search of the Ultimate Answer to Life, the Universe and Everything.

Each chamber of the pyramid is occupied by a different type of alien. To escape from a chamber, crystals must be used to neutralise the energy fields around the exit and to obtain a crystal a certain number of aliens must be destroyed.

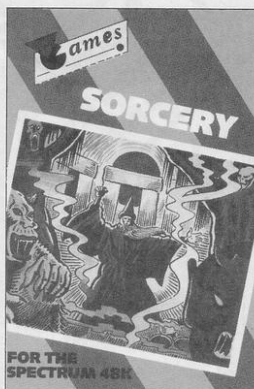
Points are gained for the speed with which a chamber is negotiated, so the more quickly the player acts the better. Aliens must be avoided, which is not always an easy task, as each type of alien has a different flight path. Crystals must be caught at the appropriate time, guarded from destruction by aliens, and negotiated to an exit as quickly as possible.

The Pyramid works with Fuller, Kempston, AGF/Protek and Mikrogen joysticks and contains four keyboard options. It is produced for the 48K Spectrum by Fantasy Software and can be bought at W H Smith for £5.50.

Pedro

PEDRO is the eponymous hero of a new game for the 48K Spectrum. To preserve his garden, he must build a wall round it, stamp out any animals which appear, plant new seeds, and scare away the tramp who tries to steal his seeds.

Finding the correct point to stamp on an animal, pick up a brick or even plant a seed is very difficult, and since so much attention must be paid to that detail, the game quickly loses its sparkle. It is from Imagine House, 5 Sir Thomas Street, Liverpool and costs £5.50.



Sorcery

SORCERY — 48K Spectrum £5.95 — has a very ambitious scenario. The Necromancer and his demonic servants have conquered the earth, causing it to fall into the dark ages. The player is the last of the great sorcerers and it is the player's task to cross the 15 screens between the sorcerer's homeland and Stonehenge to rescue fellow sorcerers and save the world from eternal darkness.

For those who enjoy arcade games, **Sorcery** is fast and furious. The sorcerer and his enemies are large sprite graphics, the course is a form of a maze, and objects to be found on the way are useful, although their uses can be found only by experiment. The major disadvantage of the game is the keys used for movement. Q and A move the sorcerer left and right and there is no chance to re-define keys. From Virgin Games, 61-63 Portobello Road, London W11.

Timebomb

TIMEBOMB — Spectrum £5.95 — is a game which calls for fast reactions and even faster thinking. The player moves round a grid, trying to reach the time bomb as quickly as possible. If a bomb is left for too long it will explode. Each square of the grid can be touched only once on each screen and six bombs must be defused on each screen. Further complications are the static skulls and walking boots which are deadly to the touch.

The game is simple in concept and infuriatingly difficult to complete. It does not, however, have the sophistication and lasting appeal of many games on the market. To represent value for

money it would have been better presented on a cassette with other games of a similar standard. From CDS Microsystems, 10, Westfield Close, Tickhill, Doncaster DN11 9LA.

Ometron

OMETRON — 48K Spectrum, £5.95 — leaves its player stranded on an uninhabited outpost of an empire to protect the landing pad there from hostile forces. The player is situated in the middle of the landing grid in a revolving turret aiming cannons.

It is yet another of those arcade-type games where the aim is to blast a number of three-dimensional space ships into oblivion and is very boring. From Software Projects, Bear Brand Com-



plex, Allerton Road, Woolton, Liverpool.

The Island

THE ISLAND — 48K Spectrum, £7.50 — is an adventure game in which the aim is to escape from a Pacific island with the treasure. The program is infuriating, for it is not an adventure which can be worked through steadily, and in which death is the inevitable consequence of bad decision-making.

Moving in certain directions will kill you instantly, without warning. One object explodes unexpectedly, another causes death if you go the wrong way with it. You survive by chance and not by skill.

It seems unlikely that any Spectrum owner will find it fun for more than a few minutes to play this repetitive, text-only adventure, which is filled with instances of the programmer's inane

humour. It appears to be aimed solely at players who never read reviews. Do not be tempted to buy it. Crystal Comput-

THE ISLAND



ing, 2 Ashton Way, East Herrington, Sunderland SR3 3RX.

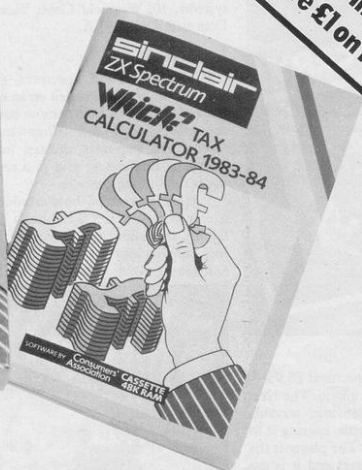
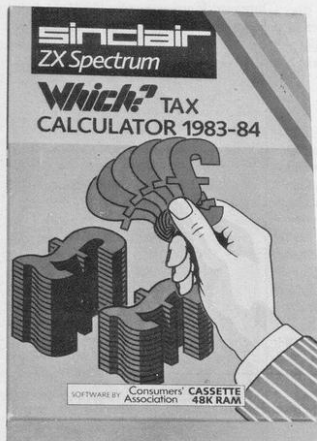
Rommel's Revenge

CRYSTAL has produced some excellent games for the Spectrum, so when the cover for **Rommel's Revenge** claims it is "a brilliant interpretation of the most visually stunning arcade game ever" it is tempting to believe it. Do not believe it.

Nowhere is the aim of the game explained, so players who have never seen the arcade game will be mystified. The reviewer was mystified. Thunder across the landscape in a tank which crashes into strange, geometric frameworks with no apparent effect, aiming for mountains which are never reached.

At that moment another tank appeared. For lack of anything else to do, it was shot. The score chart indicated that was a good thing to do, so other hapless tanks to destroy were sought. With radar scanned, the tank thundered across the landscape again. At long last another tank appeared and was shot. After another long delay, a second tank appeared, to be shot as well.

Rommel's Revenge is not gripping and it is certainly not the spectacular game claimed on the cassette cover. It also appears to be pointless. It is produced for the 48K Spectrum by Crystal Computing, 2 Ashton Way, East Herrington, Sunderland SR3 3RX and costs £6.50.



Special offer
from Sinclair Programs
Save £1 on normal price!

PUT YOUR SPECTRUM TO WORK ON DAD'S INCOME TAX!

The easy-to-use Which? Tax Calculator helps ALL tax payers — not just Dad — and can save a lot of money too. Are you eligible for a rebate on your tax bill? The Which? Tax Calculator helps you find out — and tells you how much!

Specially developed by the Consumers' Association, this personal tax program for the Sinclair Spectrum reckons your personal tax accurately and automatically — taking you step-by-step through your tax form. You simply

answer the questions about job earnings, building society interest and other income. Then you enter your outgoings like mortgage, and allowances — and the program does the rest, showing your correct tax assessment, and size of rebates due.

So DON'T pay more tax than you need!

Here's an EASY way to pay only the right amount: send off right away for this comprehensive, fully documented package.

*Sinclair
Programs*

Sinclair Programs
196-200 Balls Pond Road, London N1 4AQ

Please send me the Which? Tax Calculator 83/84 for the 48K Spectrum. I enclose a cheque for £11.99 (including VAT and P & P) made payable to Sinclair Programs.

NAME _____

ADDRESS _____

Please allow 28 days for delivery

PEARL DIVER



PHILIP NEWBY of Dobcross, Oldham wrote **Pearl Diver** for the 48K Spectrum. The king has sent you on a mission to collect six pearls from the legendary oyster. Dive into the ocean from your boat and collect the pearls, while avoiding the octopus, piranhas and shark. Each time you pick up a pearl you must return with it to your boat and dive again for the next one. If you disturb the oyster the game will end.

```

10 GO SUB 7500: GO SUB 8000
100 LET mx=2: LET my=30: LET bx
=3: LET by=my-6: LET bo=1: LET s
x=5: LET sy=3: LET ox=10: LET oy
=28: LET px=1: INT (RND *6)+5: L
ET py=1: INT (RND *20)+5: LET px
2=1: INT (RND *8)+5: LET py2= INT
(RND *20)+5
110 LET of="": LET zf="": LET s
f="": LET sd=1: LET od=1
120 DIM p$(2,3): LET pid=2: L
ET p2d=1
130 LET p$(1,1)="H": LET pearl
=0:
131 LET p$(1,3)="H": LET b$=""
132 LET p$(1,2)="HH"
133 LET p$(2,1)="I"
134 LET p$(2,2)="II"
135 LET p$(2,3)="I"
150 LET deader=5000: LET deader=5
500: LET win=6000:
1000 LET bx=bx: LET mx1=mx: LET
my1=my: LET by1=by: LET sx1=sx:
LET sy1=sy: LET ox1=ox: LET oy1
=oy: LET px1=px: LET px2=px2:
LET py1=py1: LET py2=py2
1010 PRINT INK 7: PAPER 1: AT b
x,by-1: F(54;18)G "A" AT mx,my
INK 9: PAPER 8:("B") AND ((mx<=
3 OR INKEY$="7"))+("E") AND ((
mx>3 AND INKEY$ <> "7")): AT
bx-1,by-1: INK 7: PAPER 1: "b$
"
1020 PRINT AT ox,oy-1: INK 4: P
APER 5:or: AT sx,by-1: INK 1: P
APER 5:or: AT ox1,oy1: INK 4: P
APER 5:
1030 FOR f=1 TO 3: PRINT AT px1
f,py1: INK 2: PAPER 5:p$(pid,f)
: AT px2f,py2:p$(p2d,f): NEXT f
1040 LET mx=mx+(INKEY$="6" AND
mx<18)-(INKEY$="7" AND mx>2)
1045 LET my=my+(INKEY$="8" AND
my<31)-(INKEY$="5" AND my>0)
1050 LET by=by+(INKEY$="8" AND
bo=1 AND by<31)-(INKEY$="5" AND
bo=1 AND by>1)
1060 IF mx < 2 THEN LET bo=0
1061 IF mx=2 AND my=by+6 THEN L
ET bo=1
1070 LET sy=sy+sd: IF sy=3 THEN
LET sd=1
1071 LET s$="JAK": IF sd=-1 TH
EN LET s$="LAM"
1075 IF sy=29 THEN LET sd=-1:
1080 LET oy=oy+od: IF oy=3 THEN

```

```

LET od=1:
1081 LET of="ND": IF od=-1 THE
N LET of="RS"
1082 LET z$="PQ": IF od=-1 THE
N LET z$="TU"
1085 IF oy=28 THEN LET od=-1:
1087 IF mx <= 3 THEN GO TO 1096
1090 LET px1=px1-.25*(mx<px1 AND
px1<3)+.25*(mx>px1 AND px1>12)
1091 LET py1=py1-.25*(my<py1)+.2
5*(my>py1)
1092 LET py2=py2-.25*(my<py2)+.2
5*(my>py2)
1093 LET px2=px2-.25*(mx<px2 AND
px2>3)+.25*(mx>px2 AND px2<12)
1094 LET pid=(2 AND my>py1)+(1 A
ND my<py1)+(pid AND my=py1)
1095 LET p2d=(2 AND my>py2)+(1 A
ND my<py2)+(p2d AND my=py2)
1096 IF mx>16 AND ATTR (mx,my)=
47 THEN LET pearl=1
1097 IF mx<15 AND (SCREEN$ (mx,
my)<" " AND (ATTR (mx,my)>40 AN
D ATTR (mx,my)<45)) THEN LET r
$="blood": GO TO deader: REM som
eone else got you
1100 IF pearl=1 AND bo=1 THEN L
ET b$=b$+"B": LET pearl=0: IF b$

```

```

="BBBBBB" THEN GO TO win
2010 PRINT AT mx1,my1: PAPER 8:
INK 9:(" " AND ((mx1<= 3 OR I
NKEY$="7")))+(" " AND ((mx1>3 A
ND INKEY$ <> "7"))
2030 FOR f=1 TO 3: PRINT AT px1
1f,py1: INK 2: PAPER 5: " "
: AT px21f,py21: " " NEXT f
3000 GO TO 1000
5000 FOR f=0 TO 4 STEP .1: PLOT
INK 2;57.32: DRAW OVER 1: INK
2;100,0,-: NEXT f
5010 FOR f=4 TO 2.1 STEP -.1: PL
OT 57.32: DRAW INK 8: OVER 1;10
0,0,-: NEXT f
5020 FOR f=2.1 TO .5 STEP -.1: P
LOT INK 1;57.32: DRAW INK 1;10
0,0,-: NEXT f
5050 PRINT AT 1,1:"You have los
t the pearls and your life.Y
ou disturbed the great oyster
with your blood"
5499 STOP
5500 FOR f=1 TO 50: LET a=my1*8
4+(RND *16-B): LET b=(21-mx1)*8
4+(RND *16-B): PLOT INK 2;(a
AND (a>0 AND a<255)),(b AND (b>0
AND b<170)): NEXT f: GO TO 5000
5999 STOP
6000 PAPER 4: BORDER 4: CLS
6010 PRINT AT 7,10:"(igl)2$api

```



```

g2:ig1:2*sp:ig2)"
6020 PRINT AT 8,10;"(ig8:ig1:ig
2:2*sp:ig2:ig8)"
6030 PRINT AT 9,10;"(ig8:8*sp:
ig8)"
6040 PRINT AT 10,10;"....."

6050 PRINT "Well Done !!! The ki
ng is pleased and gives yo
u a large reward"
7000 STOP
7500 CLS : PRINT AT 1,1; INK 2;
"PEARL DIVER":
7510 PRINT AT 3,0; INK 9;"You p
lay the part of the king's pearl
diver the king has told you t
o get the six pearls from the l
egendary great oyster. The s
ea around the oyster is full
of nasty creatures such as shark
s piranhas and octopus which
would all like to eat you. You c
an only carry one pearl at once
and you take it to the right
side of your boat where it stac
k itself and you can get anothe
r "
7520 PRINT : PRINT " You use the
cursor keys to move your man
Pr
ess any key to play ": PAUSE 0:
RETURN
8000 GO SUB 9000: BORDER 6: PAPE
R 5: INK 9: CLS
8005 FOR f=10 TO 245 STEP 5: PLD
T INK 4:f,0: DRAW INK 4:0,16+
RND *8,(RND*(2))-1: NEXT f
8010 FOR f=0 TO 2.1 STEP .1: PLO
T INK 1:57,32: DRAW INK 1:100,
0,f: NEXT f
8033 PRINT AT 21,9; INK 6;"(ig2
:ig1)": AT 21,16;"(ig2:ig1)":
8040 PRINT AT 17,7; INK 2;"C":
FOR f=1 TO 12 STEP 2: PRINT AT
17,f; INK 7;"B": INK 2;"C": NE
XT f
8080 FOR f=0 TO 3: PRINT AT f,0
: PAPER 1: OVER 1: TAB 31;" " :

```

```

EXT f
8999 RETURN
9000 RESTORE : FOR f=USR "a" TO
USR "u"+7: READ a: POKE f,a: N
EXT f
9010 DATA 24,60,255,255,255,255,
24,0
9020 DATA 60,126,255,255,255,255
,126,60
9030 DATA 0,0,0,60,126,126,255,2
55
9040 DATA 24,60,24,60,126-60+24,
60,126-60
9050 DATA 126-60,126-60,126-60,6
0,126-60+24,60,24,60,24
9060 DATA 255,127,63,31,15,7,3,1
9070 DATA 1,3,7,15,31,63,127,255

9080 DATA 0,24, BIN 111011, BIN
110111,127, BIN 111011, BIN 111
000,0
9090 DATA 0,24, BIN 10111100, BI
N 11110110,254, BIN 10111000, BI
N 11110,0
9100 DATA BIN 110000000, BIN 111
0000, BIN 111111, BIN 11111, BIN
1111, BIN 1100, BIN 1000,0
9110 DATA 0,0,255, BIN 110110110,
BIN 11111100, BIN 11110000,0,0
9120 DATA 0,0,255, BIN 110111,6
3, BIN 1111,0,0
9130 DATA BIN 11, BIN 1110, BIN
1111100, BIN 11111000, BIN 111
10000, BIN 110000, BIN 10000,0
9140 DATA 128, BIN 1111100, BIN
110, BIN 110010, BIN 1001010,
BIN 1010, BIN 1001111, BIN 10000
111
9150 DATA 0,0,60,126, BIN 111001
11, BIN 11110011, BIN 11100111,2
55
9160 DATA BIN 10111111, BIN 110
1111, BIN 1010, BIN 10011010, BI
N 11100110, BIN 110, BIN 1111100,
128

```

```

9170 DATA 255, BIN 11100111, BIN
11100111, BIN 11100111,126,60,0
,0
9180 DATA 0,0,60,126,231, BIN 11
001111,231,255
9190 DATA 1, BIN 111110, BIN 110
0000, BIN 1001110, BIN 1011001,
BIN 1010000, BIN 11110110, BIN 1
111101
9200 DATA 255,231, BIN 11001111,
231,126,60,0,0, BIN 11100001, BI
N 1111010, BIN 01010000, BIN 010
11001, BIN 01001110, BIN 1100000
, BIN 111110,1
9997 RETURN

```



```

1 LET L=3
2 LET S=-1
10 FAST
11 CLS
12 LET S=S+1
15 PRINT AT 0,0;"*****"
*****
16 FOR F=1 TO 21
17 PRINT AT F,0;"■";AT F,31;"■"
18 NEXT F
20 FOR F=1 TO 10
30 PRINT AT RND*10+5,RND*31;"■"
40 NEXT F
50 LET E=20
60 LET X=INT (RND*29+1)
65 PRINT AT 0,X;"■"
68 SLOW
70 FOR Y=1 TO 21
75 PRINT AT 21,E;"■"
80 LET X=X+(E>X)-(E<X)

```

```

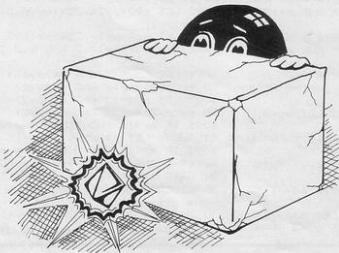
90 PRINT AT Y,X;
100 LET P=PEEK (256*PEEK 16399+
PEEK 16398)
110 PRINT "*"
120 IF P=128 THEN GOTO 10
130 LET E=E+(INKEY$="8" AND E<3
0)-(INKEY$="5" AND E>1)
140 PRINT AT 21,E;"■"
150 PRINT AT Y,X;"■"
160 NEXT Y
170 FOR F=1 TO 20
180 PRINT AT Y-1,X;"■"
190 PRINT AT Y-1,X;"■"
200 NEXT F
210 LET L=L-1
220 IF L=0 THEN GOTO 500
230 GOTO 10
500 PRINT AT 10,8;"*****SCORE:"
;8;"*****"
510 PRINT AT 20,10;"PRESS TO RE
START"
520 IF INKEY$="" THEN GOTO 520
530 RUN

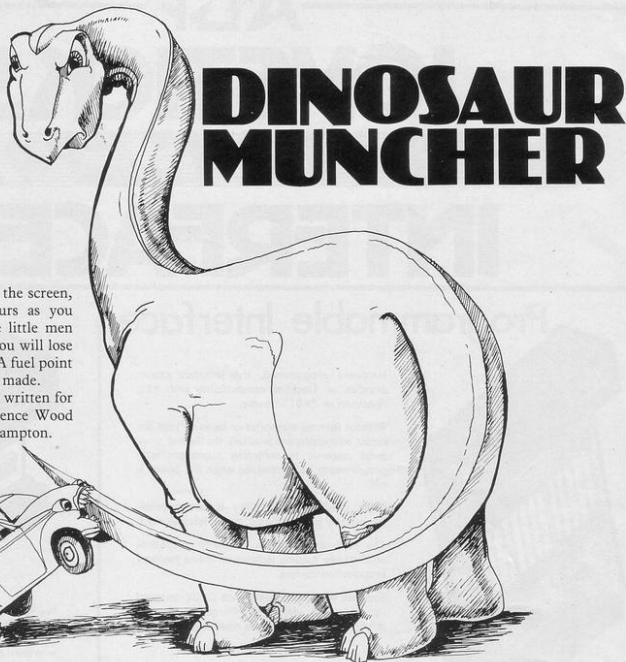
```

LOADSTONE

A BALL falls from the top of the screen and is attracted to the loadstone at the bottom. Using keys 5 and 8 to move left and right, you must move the black blocks so that they block the path of the ball. If the ball reaches the loadstone three times the game ends.

Loadstones was written for the 16K ZX-81 by Luuk Hilhorst of Assendelft in the Netherlands.





STEER your car across the screen, munching the dinosaurs as you meet them. Avoid the little men dotted round the screen as you will lose a fuel point if you eat them. A fuel point is also lost for each journey made.

Dinosaur Muncher was written for the 16K Spectrum by Laurence Wood of Abingdon Park, Wolverhampton.

```

1 CLS : GO SUB 300: LET h=0
2 RESTORE : PRINT AT 10,0;"
-----Dinosaur Muncher-----
"; AT 12,8;"By Laurence Wood"; AT
20,0;"
"; FOR F=0 TO 25: PRINT
AT 15,F;" RC M": BEEP .005,F: BE
EP .005,F+10: NEXT F
3 INPUT "Would you like to re
ad the instructions (y/n)
?";I$: IF I$="Y" OR I$="Y" THEN
GO SUB 600
5: LET k=2: LET s=0: LET l=0
10 CLS : INK 1: BORDER 4: PAPE
R 6: CLS
20 PRINT AT 0,0: FLASH 1;" sc
ore-----"; INVERSE 1;"DINOSAUR MU
NCHER"; INVERSE 0;"-----h1 "
30 PRINT AT 1,0: INK 6: PAPER
1;"*0*****"
****: AT 1,27:h
40 PRINT AT 21,0: INK 5: PAPE
R 0:"FUEL
FULL"
50 FOR f=0 TO 60
60 PRINT AT ( (RND *18)+2,(RND
D *28)+3: INK 2;"M"
61 NEXT f
65 FOR f=0 TO 20
70 PRINT AT ( (RND *18)+2,(RND
D *28)+3: INK 0;"H"
80 NEXT f
85 BEEP .2,0: BEEP .5,20
99 LET f=26
100 FOR l=0 TO 28
110 PRINT AT k,1;" RC"
111 PRINT AT 1,0: PAPER 1: INK
6: s
120 IF ATTR (k,1+3)=50 THEN B

```

```

EEP .005,10: BEEP .006,20: PRINT
AT k,1+3: PAPER 6;" ": LET s=s
+10
130 IF ATTR (k,1+3)=48 THEN B
EEP .08,-10: BEEP .08,-30: PRINT
AT k,1+3: PAPER 6;" ": LET f=f
-1
135 IF INT ( (RND *7)=0 THEN P
RINT AT ( (RND *18)+2,(RND *28)
+3: INK 0;"H"
136 IF INT ( (RND *7)=0 THEN P
RINT AT ( (RND *18)+2,(RND *28)
+3: INK 2;"M"
137 IF INKEY$="d" AND k>2 THE
N PRINT AT k,1;" ": LET k=k-
1
138 IF INKEY$="c" AND k<20 TH
EN PRINT AT k,1;" ": LET k=k
+1
140 PRINT AT 21,f;" "
141 IF INT f=4 THEN GO TO 180.
149 NEXT l
150 LET f=f-1
155 PRINT AT k,1;" ": LET k=k
+1: IF k<21 THEN GO TO 100
160 LET k=2: GO TO 100
180 PRINT AT 21,0: BRIGHT 1: P
APER 3: INK 7: FLASH 1;"-----
FUEL TANKS EMPTY-----"
190 BEEP .5,0: BEEP .2,4: BEEP
.2,5: BEEP .2,7: BEEP .2,0
200 PAPER 5: FOR f=0 TO 100: ME
XT f: CLS : PRINT AT 10,3: INK
1:"SCORE = "s
210 IF s>h THEN LET h=s: BEEP
1,20: PRINT AT 15,10: FLASH 1:
PAPER 4:"NEW HIGH SCORE"
220 PRINT AT 20,4;" ANY KEY T
O RE-PLAY": PAUSE 0
230 GO TO 2

```

```

300 FOR k=0 TO 7
310 READ b: POKE USR "r"+k,b
320 DATA 0,0,32,16,12,19,18,12
330 NEXT k
340 FOR k=0 TO 7
350 READ b: POKE USR "c"+k,b
360 DATA 0,0,0,192,192,240,234,
16
370 NEXT k
400 FOR k=0 TO 7
410 READ b: POKE USR "m"+k,b
420 DATA 96,228,34,50,50,52,44,
96
430 NEXT k
500 FOR k=0 TO 7
510 READ b: POKE USR "h"+k,b
520 DATA 24,36,36,24,231,24,24,
102
530 NEXT k
540 RETURN
600 BORDER 2: PAPER 5: INK 1: C
LS : PRINT AT 0,3;"GUIDE TO DIN
OSAUR MUNCHING"; AT 3,2: INK 0;"
Using key 'D' for up, and key 'C'
for down, steer yourdinosaur-m
unching racing car to eat the r
ed dinosaurs, and avoid the litt
le men ."
610 PRINT: INK 1;" 10 point
s are given for each dinosaur m
unched, but a unit of fuel is l
ost for each man eaten, and for e
ach journey across the screen."
620 FOR f=1 TO 100: NEXT f: PRI
NT AT 20,4;" ANY KEY TO START"
: IF INKEY$="" THEN GO TO 620
630 BEEP .5,10: RETURN

```


SWIMMING GALA



AFTER PLACING your bet you can choose the swimmer you think will win. The race will then begin and the seven swimmers must complete one length of the pool. Once the race is finished the winner is shown standing on a rostrum.

Swimming Gala was written for the 16K ZX-81 by Graham Turpin, aged 12, of Tonbridge, Kent.

```

100 LET X=1000
101 LET J=1000
102 LET G=1000
103 LET F=1000
104 LET D=1000
105 LET S=1000
106 LET H=1000
107 CLS
108 PRINT "HOW MUCH OF YOUR £";
109 X; "DO YOU WANT TO BET? £";
110 INPUT P
111 CLS
112 LET W=INT (RND*33)+1
113 LET E=INT (RND*33)+1
114 LET R=INT (RND*33)+1
115 LET T=INT (RND*33)+1
116 LET Y=INT (RND*33)+1
117 LET U=INT (RND*33)+1
118 LET I=INT (RND*33)+1
119 PRINT "CHOOSE YOUR SWIMMER."
120 PRINT AT 3,0;"W";"-1"
121 PRINT AT 6,0;"E";"-1"
122 PRINT AT 9,0;"R";"-1"
123 PRINT AT 12,0;"T";"-1"
124 PRINT AT 15,0;"Y";"-1"
125 PRINT AT 18,0;"U";"-1"
126 PRINT AT 21,0;"I";"-1"
127 INPUT B
128 CLS
129 FOR A=0 TO 21
130 PRINT AT A,1;" "
131 NEXT A
132 PRINT AT 0,1;"1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21"
133 PRINT AT H,4;"H";"AT H+1,4;"
134 PRINT AT J,8;"J";"AT J+1,8;"
135 PRINT AT G,12;"G";"AT G+1,12"
136 PRINT AT F,16;"F";"AT F+1,16"
137 PRINT AT D,20;"D";"AT D+1,20"
138 PRINT AT S,24;"S";"AT S+1,24"
139 PRINT AT 0,28;"0";"AT 0+1,28"
140 LET H=H-INT (RND*2)
141 LET J=J-INT (RND*2)
142 LET G=G-INT (RND*2)
143 LET F=F-INT (RND*2)
144 LET D=D-INT (RND*2)
145 LET S=S-INT (RND*2)
146 LET 0=0-INT (RND*2)
147 IF H<0 THEN GOTO 200
148 IF J<0 THEN GOTO 300
149 IF G<0 THEN GOTO 400
150 IF F<0 THEN GOTO 500
151 IF D<0 THEN GOTO 600
152 IF S<0 THEN GOTO 700
153 IF 0<0 THEN GOTO 800
154 GOTO 39
200 CLS
201 IF B=1 THEN LET X=X+P*W
202 IF B<>1 THEN LET X=X-P
203 GOSUB 950
204 PRINT AT 8,15;"1"
205 PAUSE 400
206 IF X=0 THEN GOTO 2000
207 GOTO 3000
300 CLS
301 IF B=2 THEN LET X=X+P*E
302 IF B<>2 THEN LET X=X-P
303 GOSUB 950
304 PRINT AT 8,15;"2"
305 PAUSE 400
306 IF X=0 THEN GOTO 2000
307 GOTO 3000
400 CLS
401 IF B=3 THEN LET X=X+P*R
402 IF B<>3 THEN LET X=X-P
403 GOSUB 950
404 PRINT AT 8,15;"3"
405 PAUSE 400
406 IF X=0 THEN GOTO 2000
407 GOTO 3000
500 CLS
501 IF B=4 THEN LET X=X+P*T
502 IF B<>4 THEN LET X=X-P
503 GOSUB 950
504 PRINT AT 8,15;"4"
505 PAUSE 400
506 IF X=0 THEN GOTO 2000
507 GOTO 3000
600 CLS
601 IF B=5 THEN LET X=X+P*Y
602 IF B<>5 THEN LET X=X-P
603 GOSUB 950
604 PRINT AT 8,15;"5"
605 PAUSE 400
606 IF X=0 THEN GOTO 2000
607 GOTO 3000
700 CLS
701 IF B=6 THEN LET X=X+P*U
702 IF B<>6 THEN LET X=X-P
703 GOSUB 950
704 PRINT AT 8,15;"6"
705 PAUSE 400
706 IF X=0 THEN GOTO 2000
707 GOTO 3000
800 CLS
801 IF B=7 THEN LET X=X+P*I
802 IF B<>7 THEN LET X=X-P
803 GOSUB 950
804 PRINT AT 8,15;"7"
805 PAUSE 400
806 IF X=0 THEN GOTO 2000
807 GOTO 3000

```

```

300 CLS
301 IF B=2 THEN LET X=X+P*E
302 IF B<>2 THEN LET X=X-P
303 GOSUB 950
304 PRINT AT 8,15;"2"
305 PAUSE 400
306 IF X=0 THEN GOTO 2000
307 GOTO 3000
400 CLS
401 IF B=3 THEN LET X=X+P*R
402 IF B<>3 THEN LET X=X-P
403 GOSUB 950
404 PRINT AT 8,15;"3"
405 PAUSE 400
406 IF X=0 THEN GOTO 2000
407 GOTO 3000
500 CLS
501 IF B=4 THEN LET X=X+P*T
502 IF B<>4 THEN LET X=X-P
503 GOSUB 950
504 PRINT AT 8,15;"4"
505 PAUSE 400
506 IF X=0 THEN GOTO 2000
507 GOTO 3000
600 CLS
601 IF B=5 THEN LET X=X+P*Y
602 IF B<>5 THEN LET X=X-P
603 GOSUB 950
604 PRINT AT 8,15;"5"
605 PAUSE 400
606 IF X=0 THEN GOTO 2000
607 GOTO 3000
700 CLS
701 IF B=6 THEN LET X=X+P*U
702 IF B<>6 THEN LET X=X-P
703 GOSUB 950
704 PRINT AT 8,15;"6"
705 PAUSE 400
706 IF X=0 THEN GOTO 2000
707 GOTO 3000
800 CLS
801 IF B=7 THEN LET X=X+P*I
802 IF B<>7 THEN LET X=X-P
803 GOSUB 950
804 PRINT AT 8,15;"7"
805 PAUSE 400
806 IF X=0 THEN GOTO 2000
807 GOTO 3000

```

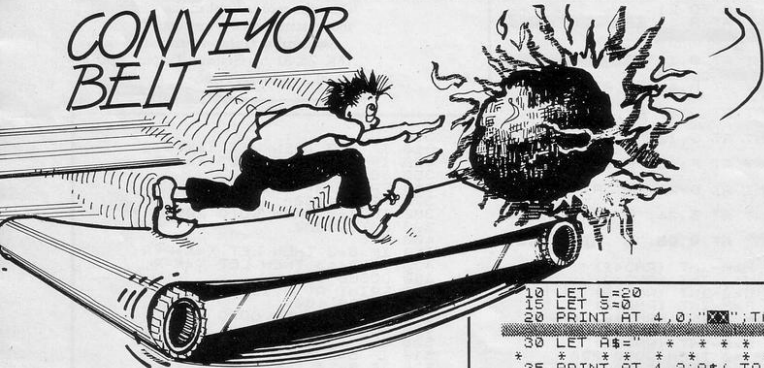
```

710 IF B=6 THEN LET X=X+P*U
720 IF B<>6 THEN LET X=X-P
730 GOSUB 950
740 PRINT AT 8,15;"8"
750 PAUSE 400
760 IF X=0 THEN GOTO 2000
770 GOTO 3000
780 CLS
790 IF B=7 THEN LET X=X+P*I
800 IF B<>7 THEN LET X=X-P
810 GOSUB 950
820 PRINT AT 8,15;"7"
830 PAUSE 400
840 IF X=0 THEN GOTO 2000
850 GOTO 3000
860 FOR H=15 TO 21
870 PRINT AT H,5;" "
880 NEXT H
890 PRINT AT 17,14;"1ST"
900 PRINT AT 14,13;" "
910 PRINT AT 12,14;" "
920 PRINT AT 10,14;" "
930 PRINT AT 8,12;" "
940 PRINT AT 6,15;" "
950 PRINT AT 4,14;" "
960 PRINT AT 3,14;" "
970 PLOT 23,35
980 PLOT 22,35
990 IF X=0 THEN PRINT AT 20,12;"BAD LUCK"
1000 RETURN
1010 CLS
1020 PRINT AT 10,5;"SORRY,YOUR B
1030 RDK"
1040 STOP
1050 IF X=10 THEN GOTO 3010
1060 PRINT AT 0,5;"ANOTHER BET (
1070 Y/N)"
1080 AT 2,5;"YOU HAVE ";X;" POU
1090 NDS LEFT"
1100 PAUSE 4E4
1110 IF INKEY$="Y" THEN GOTO 2
1120 IF INKEY$="N" THEN CLS
1130 CLS
1140 PRINT AT 10,0;"YOU ENDED UP
1150 WITH ";X;" POUNDS"
1160 STOP

```



CONVEYOR BELT



HELP YOUR man to avoid a sticky end as he tries to survive on a fast-moving conveyor belt heading towards a pot of oil. You must also help him to jump over the fire balls using keys 8 and 0.

Conveyor Belt was written for the 1K ZX-81 by Gerald Hayden, aged 15, of Tunbridge Wells, Kent.

```

10 LET L=20
15 LET S=0
20 PRINT AT 4,0;"XX";TAB 0;"XX"
30 LET A$=" * * * * "
35 * * * * *
40 LET L=L-1+(INKEY$="8")
45 PRINT AT 4,L;"A"
50 IF INKEY$="0" THEN GOSUB 10
55 LET S=S+1
60 IF A$(L-1)="*" OR L=2 THEN
GOTO 200
70 LET A$=A$(2 TO )+A$(1)
80 GOTO 35
90 LET L=L+2
110 PRINT AT 4,L-2;" "
120 RETURN
200 PRINT AT 0,0;S

```



```

99,224,248,158,230,207,59,51,49,
49,17,0,0,235,255,60,153,129,231
,195,0,243,204,204,140,140,136,0
10
1049 REM starfish
1050 DATA 0,103,148,24,60,69,70,
32
1060 DATA 255,255,127,126,56,24,
0,0,255,62,30,28,28,12,12,0
1070 DATA 0,28,62,127,255,255,25
5,255
1500 BORDER 5: PAPER 5: INK 2: C
LS
1501 PRINT AT 3,11:"C R A B S"
1502 PRINT OVER 1: AT 3,11:"---
"
```

```

1505 PRINT AT 5,0:" YOU MUST
TRY TO EAT AS MANY STARFISH AS
YOU CAN BEFORE YOU RUN OUT OF L
IVES OR TIME."
```

```

1506 PRINT AT 8,0:" YOU HAVE
300 TIME UNITS TO START WITH A
ND THREE LIVES. IF YOU HAVE 2 O
R 3 LIVES LEFT WHEN TIME = 300
THEN YOU WILL HAVE ANOTHER 50
UNITS ADDED. WHEN ONLY ONE LI
FE REMAINS & TIME IS >300 A BUZ
ZER WILL SOUND AND YOU WILL HAVE
50 TIME UNITS LEFT."
```

```

1507 PRINT AT 17,0:" THE KEYS A
RET= O/W= LEFT/RIGHT
O/I= UP/DOWN."
```

```

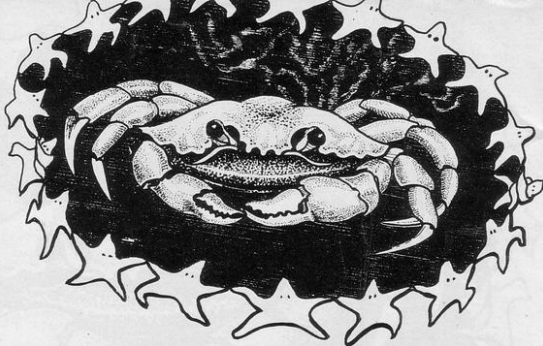
1508 PRINT AT 20,6:"BEWARE THE
WAVES!"
```

```

1510 GO SUB 4000: PRINT #0: TAB
10:"PRESS A KEY": PAUSE 0: RETUR
N
```

```

4000 BEEP .25,12: BEEP .125,12:
BEEP .25,14: BEEP .25,12: BEEP .
125,9: BEEP .25,7: BEEP .125,5:
BEEP .25,4: BEEP .125,5: BEEP .4
0,12: BEEP .75,12
4010 PAUSE 10
4020 BEEP .25,12: BEEP .25,14: B
```



```

EEP .25,12: BEEP .125,8: BEEP .2
5,7: BEEP .125,5: BEEP .25,4: BE
EP .125,5: BEEP .75,14
4030 PAUSE 10
```

```

4040 BEEP .25,14: BEEP .40,16: B
EEP .25,14: BEEP .125,10: BEEP .
```

```

25,9: BEEP .25,7: BEEP .25,6: BE
EP .125,7: BEEP .40,14: BEEP .40
,12: BEEP .40,10: BEEP .25,9: BE
EP .125,6: BEEP .40,9: BEEP .40,
```

```

7: BEEP .40,9: BEEP .10,7: BEEP
.10,6: BEEP .10,7: BEEP .40,9: BE
EP .40,7: BEEP .40,4050 PAUSE 15
```

```

4060 BEEP .40,12: BEEP .25,14: B
EEP .25,12: BEEP .125,9: BEEP .2
5,7: BEEP .125,5: BEEP .25,4: BE
EP .125,5: BEEP .40,12: BEEP .75
,12
```

```

4070 PAUSE 15
4080 BEEP .40,14: BEEP .25,12: B
EEP .125,9: BEEP .25,7: BEEP .12
5,5: BEEP .25,4: BEEP .125,5: BE
EP .75,14
4090 PAUSE 5
```

```

5000 BEEP .25,13: BEEP .125,14:
BEEP .25,15: BEEP .125,14: BEEP
.25,15: BEEP .125,14: BEEP .25,1
5: PAUSE 6: BEEP .30,15: BEEP .1
25,10,5: BEEP .25,14: BEEP .125,
12: BEEP .25,14: BEEP .125,12: B
EEP .40,14: BEEP .125,12: BEEP .
```

```

25,10: BEEP .125,9: BEEP .25,7:
BEEP .40,14: PAUSE 10: BEEP .125
,9: BEEP .25,7: BEEP .125,9: BEE
P .75,5
5010 RETURN
```

POWER CRYSTAL



THE OBJECT of **Power Crystal** is to visit different locations to find a power crystal which will enable you to return to your own time. There are several places for you to

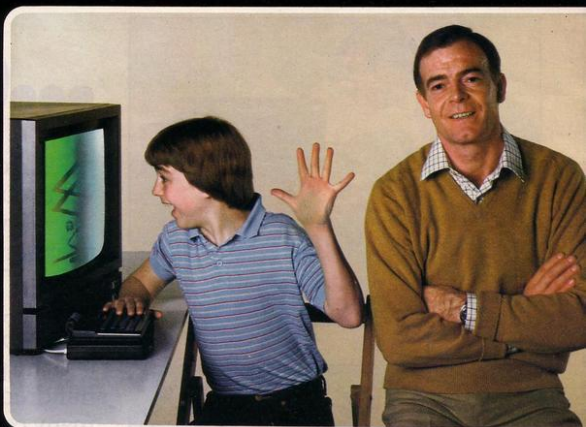
search, including the river, forest, lake and hills. N, S, E and W commands are used.

Power Crystal was written for the 1K ZX-81 by G Dahl of Norway.

```

10 LET A$=SGN PI
20 LET E$=NOT PI
30 LET W$=-A
40 LET S$=-W
50 LET N$=S+W
60 DIM A$(VAL "5",VAL "10")
70 LET X$="5332250114122534415
5"
80 LET A$(A)="RIVER NSW"
90 LET A$(-S)="LAKE SEW"
100 LET A$(-N)="FOREST NSEW"
110 LET A$(S$S)="HILL NSW"
120 LET A$(VAL "5")="CAVERN NS"
130 LET B=A
140 PRINT A$(B), "WHAT NOW?"
150 INPUT A
160 LET A=VAL X$(B*S$S+A)
170 CLS
180 IF A THEN GOTO 130
190 PRINT "POWER CRYSTAL"
200 PRINT "CONGRATULATIONS"
```

Today, we talked to our user group, booked our holiday, zapped nine monsters, checked the football results, bought two games, looked at share prices, learnt some French, and conquered the universe!



Prism VTX 5000
winner
- Peripheral of the year -
British Microcomputing
Awards 1984

Prism gives you information, communication



Games



Swapping



Educational software



News



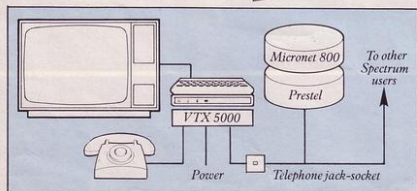
Competitions



Telesoftware



APPROVED for use with telecommunications systems run by British Telecom in accordance with the conditions in the instructions for use.



...and so on

Access a world of information with your Spectrum.

Simply by connecting it to the telephone line, via the award winning Prism VTX 5000 communications modem, you can link into a wide variety of services, including Prestel and the popular Micromet 800. Access hundreds of software programs – many completely free. Talk to fellow users. Keep up to date with all the latest national, international and micro news. Play on-screen games. Check sports results. Book travel and

Communication, education...



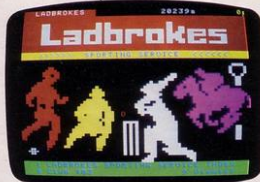
Shopping



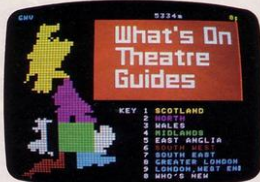
Travel



Teach yourself programming



Sport



Booking



Mailbox

much more!

entertainment. Learn a language.
Check share prices.

The choice is simply vast.
Plus, your Prism VTX 5000,
allows you to communicate directly
with other Spectrum owners.

And now, our special offer
means that you can do all this for just
£11* a month. So complete the coupon
and send it to us today, and we will let
you have full details of our unbeatable
offer.

FOR JUST £11* A MONTH YOU WILL GET:

- A Prism VTX 5000 worth £99.95.
- One year's subscription to Prestel worth £20.00.
- One year's subscription to Micronet worth £32.00.
- Free user-to-user software - normally retailing at £19.00.
- Quarterly hardware and software offers.
- Discounted software through Micronet (up to 20% off retail prices).

Prestel and the Prestel symbol are trademarks of British Telecommunications.

Please send me full information on your special offer
to Spectrum users.

Name: _____
Address: _____

Return to: Prism Microproducts Ltd.
Prism House, 18-29 Mora Street, City Road
London EC1V 8BT. Tel: 01-253 2277

PRISM

*All prices quoted refer to domestic use only. For business use the Prestel annual standing charge is £66. Therefore business users will be billed £44.50 per quarter.

SABRE WOLF

ULTIMATE
PLAY THE GAME

48K SINCLAIR ZX SPECTRUM
£9.95

LONDON RAID

FLY your aircraft over London and protect St Paul's from enemy bombs. Crashing into the cathedral will reduce your score but you will lose a life if you are hit by enemy fire or collide with an enemy aircraft.

London Raid was written for the 48K Spectrum by Julian Hagley of Windsor, Berkshire.



```

5 LET hi=0
10 GO SUB 9500
20 GO SUB 8500
30 GO SUB 8000
40 GO SUB 9000
1000 LET h=INT ((RND *18)/3)+1
  : FOR t=31 TO 0 STEP -1: PRINT
  AT h,t; " "
1010 LET h=h+INT (RND *3-1)
1020 IF h<1 THEN LET h=1
1030 IF h>6 THEN LET h=6
1040 PRINT INK 6; AT h,t; CHR#
145
1050 LET y=y+1: IF y >= 31 THEN
  PRINT AT x,y-1; " "; LET y=0
1060 IF ATTR (x,y)=7 THEN GO S
UB 3500
1070 PRINT INK 4; AT x,y; CHR#
144; AT x,y-1; " "
1080 IF h=x AND t=y THEN GO SUB
4000
1090 PRINT AT h, INT (RND *31)
; INK h; CHR# 147
1110 IF RND >.93 THEN GO SUB 1
500
1120 FOR n=0 TO z: NEXT n
1130 BEEP .002,15
1140 LET i$=INKEY$
1150 IF i$="" THEN NEXT t
1160 IF i$="5" AND y>0 THEN PRI
NT AT x,y; " ": LET y=y-1: NEXT
t
1170 IF i$="8" AND y<31 THEN PR
INT AT x,y; " ": LET y=y+1: IF
ATTR (x,y)=7 THEN GO SUB 3500
1180 IF i$="7" AND x>1 THEN PRI
NT AT x,y; " ": LET x=x-1: NEXT
t
1190 IF i$="6" AND x<21 THEN PR
INT AT x,y; " ": LET x=x+1: IF
ATTR (x,y)=7 THEN GO SUB 3510
1200 IF i$="0" THEN GO SUB 2000
1210 NEXT t
1220 PRINT AT h,0; " ": GO TO 10
00
1500 POKE 35050,45: FOR n=t-2 TO
1 STEP -1: PRINT INK 6; AT h,n
; CHR# 45
1510 PRINT AT h,n+1; " ": RANDOM
IZE USR 35049: IF h=x AND n=y
THEN GO SUB 2500
1520 NEXT n
1530 PRINT AT h,1; " ": NEXT t

```

```

2000 POKE 35050,39: FOR n=y+2 TO
31 STEP 1: PRINT INK 4; AT x,n
; CHR# 45
2010 PRINT AT x,n-1; " ": RANDOM
IZE USR 35049: IF x=h AND n=t
THEN GO SUB 3000
2020 IF ATTR (x,n+1)=7 THEN GO
SUB 4500
2030 NEXT n
2040 PRINT AT x,31; " ": NEXT t
2500 PRINT INK 2; AT x,y; CHR#
146; " ": POKE 35001,17: RANDOMIZ
E USR 35000: LET i1=i1-1: PRINT
AT 0,6;11: PRINT AT x,y; " "
  LET y=0: LET x=12: IF i1=0 THEN
GO TO 7500
2510 NEXT t
3000 PRINT INK 2; AT h,t-1; " ":
CHR# 146: POKE 35001,14: RANDOM
IZE USR 35000: LET sc=sc+5: LET
f=f+5: PRINT AT h,t; " ": PRINT
AT 0,17;sc; " ": IF f=50 THEN
GO SUB 7000
3010 GO TO 1000
3500 PRINT INK 2; AT x,y-1; CHR
# 146: POKE 35001,11: RANDOMIZ
E USR 35000: PRINT AT x,y-1; " ":
GO TO 3520
3510 PRINT INK 2; AT x-1,y; CHR
# 146: POKE 35001,11: RANDOMIZ
E USR 35000: PRINT AT x-1,y; " "
3520 LET x=12: LET y=0: LET f=f-
10: LET sc=sc-10: PRINT AT 0,17
;sc; " ": RETURN
4000 PRINT INK 2; AT x,y; CHR#
146; " ": POKE 35001,29: RANDOMIZ
E USR 35000: LET i1=i1-1: PRINT
AT 0,6;11: PRINT AT x,y; " "
  LET y=0: LET x=12: IF i1=0 THEN
GO TO 7500
4010 GO TO 1000
4500 PRINT INK 2; AT x,n; CHR#
146: POKE 35001,4: RANDOMIZE US
R 35000: PRINT AT x,n; " ": AT x
,y; " ": LET y=0: LET x=12: LET f
=f-10: LET sc=sc-10: PRINT AT 0
,17;sc; " ": NEXT t
4700 PRINT FLASH 1; PAPER 1; IN
K 4; AT 3,13;"BONUS"
7010 FOR r=130 TO 0 STEP -3: OUT
160,r-1: BEEP .007,r/3: NEXT r
7020 LET sc=sc+30: LET f=0: PRIN
T AT 3,13; " ": AT x,y-1; " "

```

```

: RETURN
7500 PRINT INK 0; PAPER 5; FLAS
H 1; AT 4,11;"GAME OVER"
7510 FOR a=1 TO 10: FOR b=0 TO 7
7520 BORDER b: BEEP .02,b
7530 NEXT b: NEXT a
7540 POKE 23693,6: BORDER 0: CLS
7550 PAUSE 10
7560 FOR z=60 TO 0 STEP -3: BEEP
.01,60-z: BEEP .02,z: NEXT z
7570 PRINT INK 2; PRINT
7580 LET c$="Your mission is ov
er,you have lost all 3 of you
r planes. Your score w
as: -"
7590 LET n=30: GO SUB 7720
7600 PRINT INK 3; FLASH 1;sc
7610 IF sc>hi THEN LET hi=sc: G
O TO 7650
7620 PRINT : PAUSE 40: LET c$="
Unfortunately your score does
not beat todays high of:-"
7630 LET n=15: GO SUB 7720
7640 PRINT INK 3; FLASH 1;hi: G
O TO 7670
7650 PRINT : PAUSE 40: LET c$="
However your score is the
highest of the day."
7660 LET n=42: GO SUB 7720
7670 PRINT FLASH 1; AT 18,7;"AN
OTHER GAME (y/n)"
7680 IF INKEY$="" THEN BEEP .
02,RND *15: GO TO 7680
7690 IF INKEY$="y" THEN CLS :
FOR n=1 TO 25: NEXT n: GO SUB 8
700: INK 3: RANDOMIZE USR 35037
: PRINT AT 0,27;hi: GO TO 40
7700 IF INKEY$="n" THEN PRINT
USR 0
7710 GO TO 7680
7720 FOR x=1 TO LEN c$: PRINT c
$(x); BEEP .1,n: NEXT x: RETURN
8000 POKE 23693,3: BORDER 0: CLS
8010 PRINT AT 0,0;"LIVES=3": AT
0,11;"SCORE=0": AT 0,22;"HIGH=0
": POKE 23693,7
8020 RESTORE 8150: PLOT 66,0: FO
R n=1 TO 35: READ a,b: DRAW a,b:
NEXT n
8030 PLOT 101,80: DRAW 59,0,- PI
8040: FOR n=1 TO 18: READ a,b,c,

```

```
d: PLOT a,b: DRAW c,d: NEXT n: D
RAW 5,0: DRAW 0,8: DRAW -5,0,4
```

```
8050 CIRCLE 94,40,2: CIRCLE 181,
40,2: PLOT 94,40: PLOT 181,40
8060 FOR n=10 TO 150 STEP 10: P
LOT n,80: DRAW 0,-20: NEXT n
8070 FOR n=116 TO 144 STEP 7: PL
OT n,10: DRAW 0,20: NEXT n
8080 FOR n=94 TO 175 STEP 79: PL
OT n,25: DRAW 5,0: DRAW 0,-10: D
RAW -5,0: DRAW 0,10: NEXT n
8090 FOR n=90 TO 177 STEP 87: PL
OT n,46: DRAW 8,0: PLOT n,58: DR
AW 8,0: PLOT n+2,46: DRAW 0,12:
PLOT n+4,46: DRAW 0,12: PLOT n+6
,46: DRAW 0,12: NEXT n
8100 FOR n=103 TO 153 STEP 10: P
LOT n,78: DRAW 5,0: DRAW 0,-5: D
RAW -5,0: DRAW 0,4: NEXT n
8110 FOR n=106 TO 156 STEP 10: P
LOT n,58: DRAW 3,0: DRAW 0,-10:
DRAW -3,0: DRAW 0,10: NEXT n
8120 FOR n=103 TO 153 STEP 10: P
LOT n,40: DRAW 0,20: NEXT n
8130 PLOT 127,110: DRAW 3,3: DRA
W 3,-3: PLOT 130,113: DRAW 0,6:
DRAW 0,-2: DRAW 2,0: DRAW -4,0
8140 FOR n=1 TO 4: PLOT 130,110:
READ a,b,c: DRAW a,b,c: NEXT n
```

```
8150 DATA 0,30,4,4,18,0,0,10,2,0
,0,16,4,16,4,-16,0,-14,1,0,0,-6,
2,0,0,18,-2,0,0,2,2,0,0,20,60,0,
0,-20,2,0,0,-2,-2,0,0,-18,6,0,-2
,0,0,-10,8,0,0,10,2,0,0,-2,2,0,0,
,18,4,16,4,-16,0,-56,94,75,0,2,1
81,72,0,2,100,60,60,0,100,40,66,
0,66,30,118,0,130,40,-14,-10,130,
40,14,-10,66,10,118,0,88,30,0,-
20,162,30,0,-20,106,30,0,-20,70,
34,0,2,88,30,0,4,100,40,0,-10,10
0,34,20,0,139,34,33,0,130,110,0,
-30,74,22,0,-8,-20,-30,1,-10,-30
```

```
,1,1,10,-30,-1,1,20,-30,-1
8160 FOR a=1 TO 150
8170 LET b=INT ( RND *7): LET c
=INT ( RND *255): LET d=INT (
RND *160): IF c>60 AND c<195 AND
c<120 THEN GO TO 8170
8180 PLOT INK b,c,d: NEXT a
8190 POKE 23693,3: RANDOMIZE US
R 35025: RETURN
8500 POKE 23693,7: BORDER 0: CLS
```

```
8510 PRINT FLASH 1: AT 10,8: PA
PER 7: INK 1: INSTRUCTIONS (Y/N)
8520 LET i$=INKEY$
8530 IF i$="" THEN BEEP .01, RN
D *35
8540 IF i$="n" THEN CLS: GO SU
B 8700: FOR n=1 TO 20: NEXT n: R
ETURN
8550 IF i$="y" THEN CLS: FOR n
=1 TO 20: NEXT n: GO TO 8570
8560 GO TO 8520
8570 GO SUB 8690
8580 PRINT AT 3,1: "It is your m
ission to shoot down as many
enemy air craft as possible. Eve
ry one destroyed will gain you a
five points. However if y
ou fire and hit or should you cr
ash into St.Pauls then ten poin
ts will be lost. If you are s
hot by enemy air craft or cras
h into enemy craft then one life
will be lost."
8590 PRINT AT 17,9: INK 4: CHR$
144: INK 7: THIS IS YOU: INK
6: AT 19,9: CHR$ 145: INK 7: EN
EMY CRAFT"
8600 PRINT FLASH 1: INK 6: AT 2
1,6: "PLEASE PRESS ANY KEY: PAUS
E 0
8610 CLS
8620 GO SUB 8690
8630 PRINT AT 4,12: "CONTROLS"
```

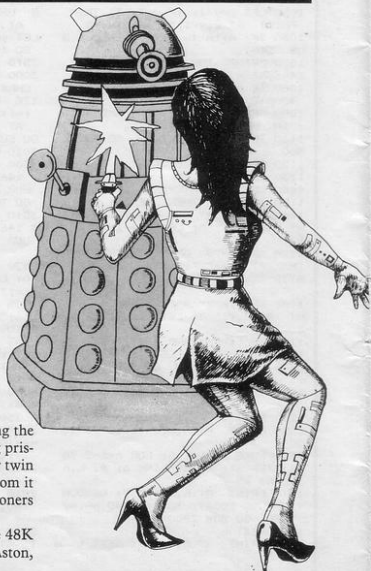
```
8640 PRINT PAPER 2: AT 6,11: "UP
:-7": AT 8,11: "DOWN :-6":
AT 10,11: "HOVER :-5": AT 12,11
: "THRUST :-8": AT 14,11: "FIRE
:-0"
8650 GO SUB 8700
8660 PRINT INK 6: PAPER 0: FLAS
H 1: AT 21,0: PRESS ANY KEY
TO PLAY
8670 PAUSE 0
8680 CLS: FOR n=1 TO 20: RETURN
```

```
8690 PRINT AT 1,11: PAPER 1: " A
IR RAID " : PLOT 87,159: DRAW 79,
0: DRAW 0,9: DRAW -79,0: DRAW 0,
-9: RETURN
8700 PRINT AT 21,0: "PLEASE SELE
CT LEVEL 1 TO 5(easy)"
8710 IF INKEY$ <"1" OR INKEY$
>"5" THEN GO TO 8700
8720 LET z=( VAL INKEY$ -1)*5:
FOR n=1 TO 20: NEXT n: RETURN
```

```
9000 LET y=0: LET x=12: LET f=0:
LET sc=0: LET i1=3: RETURN
9500 RESTORE 9520: FOR a=USR "a
" TO USR "d": READ b: POKE a,
b: NEXT a
9510 RESTORE 9560: FOR n=0 TO 73
: READ a: POKE 35000+n,a: NEXT n
: RETURN
9520 DATA 0,16,152,255,152,16,0,
0
9530 DATA 0,8,25,255,25,8,0,0
9540 DATA 16,66,72,1,20,68,8,34
9550 DATA 1,0,0,0,0,0,0,0,128
9560 DATA 17,10,0,33,10,0,6,14,1
97,213,229,205,181,3,1,100,0,225
,237,74,209,193,16,240,201,33,0,
64,17,200,175,1,192,26,237,176,2
01,33,200,175,17,0,64,1,192,26,2
37,176,201,1,1,7,33,255,0,17,10,
0,229,213,197,205,181,3,193,209,
225,125,145,111,16,242,251,201
```

DALEK RAID

```
5 DIM a$(5,5): DIM b$(2,5)
6 GO SUB 9000
7 BORDER 6: PAPER 6: INK 0: C
LS
8 GO SUB 9100
9 CLS
10 LET hm=0:
12 LET a$(1)=" "
13 LET a$(2)=" ABC "
14 LET a$(3)=" DEF "
15 LET a$(4)=" GHI "
16 LET a$(5)=" JKL "
17 LET b$(1)=" MM "
18 LET b$(2)=" OP "
19 LET sc=30
20 LET xx=INT ( RND *6)+3: LE
T yy=0
25 CLS
30 LET i=INT ( RND *7)
40 LET dr=1
60 LET a=12: LET b=6
200 GO SUB 9000
210 PRINT AT a,b: INK 2:"X": P
RINT AT a,b," ": OVER 0
```



PREVENT the dalek releasing the other daleks you are holding prisoner by firing at it with your twin lasers. If the dalek reaches the bottom it will open the gate and your prisoners will escape.

Dalek Raid was written for the 48K Spectrum by Melvin Carter of Aston, Birmingham.


```

1 GOTO 8500
2 CLS
3 LET X=18
4 LET Y=30
5 GOTO 6000
6 CLS
7 PRINT "DO YOU WANT MAZE 1 0
R 2?
50 IF INKEY$="1" THEN GOTO 700
60 IF INKEY$="2" THEN GOTO 800
70 IF INKEY$="" THEN GOTO 50
80 IF INKEY$<"1" OR INKEY$>"1"
2" THEN GOTO 50
320 PRINT AT X,Y;"O";AT X+1,Y;"
X";AT X+2,Y;"
800 GOTO 4900
900 FOR N=1 TO Z
1000 LET B$=INKEY$
1010 IF B$="S" THEN GOTO 1400
1020 IF B$="6" THEN GOTO 1600
1030 IF B$="8" THEN GOTO 1800
1040 IF B$="1" THEN NEXT N
1080 GOTO 2000
1090 STOP
1400 PRINT AT X,Y-1;
1410 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1420 IF C$="+" THEN GOTO 4000
1422 PRINT AT X+1,Y-1;

```

```

4010 PRINT AT 9,11;"HARD LUCK"
4020 PRINT AT 10,10;"PRESS (P) T
0"
4030 PRINT AT 11,11;"PLAY AGAIN"
4040 PRINT AT 13,10;"PRESS (S) T
0"
4050 PRINT AT 14,14;"STOP"
4060 LET B$=INKEY$
4070 IF INKEY$="" THEN GOTO 4050
4080 IF B$="P" THEN RUN
4090 IF B$="S" THEN STOP
4100 IF B$<"P" OR B$>"S" THEN
4000
4900 IF X<>1 THEN GOTO 900
4910 IF Y<>29 THEN GOTO 900
5000 PRINT AT 1,28;"F";AT 2,28;"
";AT 3,28;"
5010 PRINT AT 9,11;"WELL DONE";A
T 10,10;"PRESS (P) TO";AT 11,11;
"PLAY AGAIN"
5020 IF INKEY$="" THEN GOTO 5020
5030 IF INKEY$="P" THEN RUN
5040 STOP
5000 PRINT "WHICH DIFFICULTY DO
YOU WANT TO PLAY (1-6)?
(1-HARDEST,6-EASIEST
)"
6010 LET B$=INKEY$
6015 IF B$="1" THEN GOTO 6010
6020 IF B$="6" THEN LET Z=6
6030 IF B$="5" THEN LET Z=5

```

BALLOON BU

```

1423 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1424 IF C$="+" THEN GOTO 4000
1425 PRINT AT X+2,Y-1;
1426 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1427 IF C$="1" THEN GOTO 4000
1430 PRINT AT X,Y;" ";AT X+1,Y;"
";AT X+2,Y;"
1440 LET Y=Y-1
1450 PRINT AT X,Y;"O";AT X+1,Y;"
X";AT X+2,Y;"
1460 GOTO 800
1500 PRINT AT X+3,Y;
1510 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1520 IF C$="+" THEN GOTO 4000
1530 PRINT AT X,Y;" ";AT X+1,Y;"
";AT X+2,Y;"
1540 LET X=X+1
1550 PRINT AT X,Y;"O";AT X+1,Y;"
X";AT X+2,Y;"
1560 GOTO 800
1590 PRINT AT X,Y+1;
1610 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1620 IF C$="+" THEN GOTO 4000
1621 PRINT AT X+1,Y+1;
1622 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1623 IF C$="+" THEN GOTO 4000
1624 PRINT AT X+2,Y+1;
1625 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
1626 IF C$="+" THEN GOTO 4000
1630 PRINT AT X,Y;" ";AT X+1,Y;"
";AT X+2,Y;"
1640 LET Y=Y+1
1650 PRINT AT X,Y;"O";AT X+1,Y;"
X";AT X+2,Y;"
1660 GOTO 800
2000 PRINT AT X-1,Y;
2010 LET C$=CHR$ PEEK (PEEK 1639
6+PEEK 16399+255)
2020 IF C$="+" THEN GOTO 4000
2030 PRINT AT X,Y;" ";AT X+1,Y;"
";AT X+2,Y;"
2040 LET X=X-1
2050 PRINT AT X,Y;"O";AT X+1,Y;"
X";AT X+2,Y;"
2060 GOTO 800
4000 PAUSE 5

```

```

6040 IF B$="4" THEN LET Z=4
6050 IF B$="3" THEN LET Z=3
6060 IF B$="2" THEN LET Z=2
6070 IF B$="1" THEN LET Z=1
7000 CLS
7100 PRINT "+++++++"
7110 PRINT "+++"
7120 PRINT "++"
7130 PRINT "++"
7140 PRINT "++ ++++++"
7150 PRINT "++ ++++++++"
7160 PRINT "++ ++++++++"
7170 PRINT "+++ +
+++++++"
7180 PRINT "+++++ +
+++++++"
7190 PRINT "++++++ +
+++++++"
7200 PRINT "+++ + ++++++"
7210 PRINT "++ + +
+++++"
7220 PRINT "++ + +
+++++"
7230 PRINT "++ + +
+++++"
7240 PRINT "++ ++ ++ +
+++++"
7250 PRINT "++ ++ ++
+++++"
7260 PRINT "++ ++++++ ++
++++"
7270 PRINT "++ +
++++"
7280 PRINT "+++ +++++"
7290 PRINT "+++++ +++++"
7300 PRINT "+++++ ++++++++"
7310 PRINT "+++++ ++++++++"
7330 GOTO 320
8000 CLS

```

IRST

THE BALLOON you are in floats up on its own so you cannot control changes in its ascent. You can, however, move the

balloon left, right and down, using the cursor keys. There are two mazes from which to choose and you must guide the balloon round the maze, avoiding the walls which will burst the balloon. Having done that you must then land on the target.

Balloon Burst was written for the 16K ZX-81 by Adrian Blair of Co Tyrone, N Ireland.

```

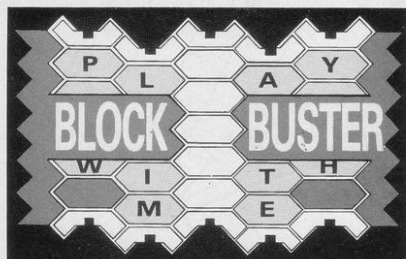
0005 PRINT "+++++++"
+++++
0010 PRINT "+++++++"
+++++
0020 PRINT "+++++++"
+++++
0030 PRINT "++      ++++++++"
+++++
0040 PRINT "++      ++++++++"
+++++
0050 PRINT "++      +++      ++++"
+++++
0060 PRINT "++      +      +++      ++"
+++++
0070 PRINT "++      ++      +      "
+++++
0080 PRINT "++      +      ++      "
+++++
0090 PRINT "++      ++      +++++"
+++++
0100 PRINT "++      ++      ++      ++"
+++++
0110 PRINT "++      ++++++      ++"
+++++
0120 PRINT "++      +++      ++      ++"
+++++
0130 PRINT "++      +++      ++      +      ++"
+++++
0140 PRINT "++      ++      ++      ++      ++"
+++++
0150 PRINT "++      ++      ++      ++      ++"
+++++
0160 PRINT "++      ++      ++      ++      ++"
+++++
0170 PRINT "++      +      +++++"
+++++
0180 PRINT "++      +++++"
+++++
0190 PRINT "++      +++++"
+++++

```

```

8200 PRINT "++++++ ++++++"
8210 PRINT "++++++"
8220 GOTO 320
8500 CLS
8510 PRINT "+++++INSTRUCTI
NS+++++"
8514 PRINT AT 2,21;"0";AT 4,21;"
8520 PRINT AT 3,0;"YOU ARE IN A
BALLOON(X),AND YOU";
8525 PRINT AT 6,22;" ";AT 8,22
8530 PRINT AT 7,0;"MUST REACH TH
E TARGET( ) USING"
8540 PRINT AT 9,0;"THE CONTROLS.
BUT THE BALLOON FLOATS UP ON
ITS OWN.THEREFORE YOU CANNOT CO
NTROL UP MOVEMENT."
8550 PRINT AT 15,0;"++++PRESS (
P) TO CONTINUE++++"
8560 IF INKEY$="P" THEN GOTO 860
0
8570 IF INKEY$="" THEN GOTO 8560
8580 IF INKEY$("<"P" THEN GOTO 85
60
8600 CLS
8610 PRINT "+++++CONTROLS
+++++"
8620 PRINT
8630 PRINT AT 6,12;"5=LEFT";AT 8
,12;"6=DOWN";AT 10,12;"8=RIGHT"
8640 PRINT AT 15,0;"++++PRESS (
P) TO CONTINUE++++"
8650 IF INKEY$="" THEN GOTO 5
8660 IF INKEY$("<"P" THEN GOTO 8650
8670 IF INKEY$("<"P" THEN GOTO 86
50

```



**THE QUIZ GAME
BY COMPUSOUND**

© 1984

BLOCK BUSTER is an exciting quiz game for ONE or TWO players and will appeal to a wide range of ages and skills with nine levels of play against the clock. The games tests speed of recall involving anticipation of the question as the 'windows' across the screen and speed of response dependent on the level of play. BLOCK BUSTER is supplied with the FIRST ADDITIONAL QUESTION TAPE FREE to maintain the challenge of the game. Now available at good computer shops or direct with cheque/P.O. for £5.95 inclusive. ACCESS and VISA orders taken on our 24 Hour Hotline.

COMPUSOUND

DEPT SP, 32-33 LANGLEY CLOSE, REDDITCH, WORCS B96 0ET
TELEPHONE (0527) 21429 (21438 24 Hr. HOTLINE)

MAIL ORDER PROTECTION SCHEME

Advertisements in this magazine are required to conform to the British Code of Advertising Practice. In respect of mail order advertisements where money is sought in advance of the despatch of goods the Code requires the advertiser to despatch goods within 28 days, unless a longer period is stated. Where goods are returned to an advertiser, undamaged, within 7 days, the purchaser's money must be refunded, plus the cost of returning the goods. The reader should retain evidence of despatch.

If you order goods from mail order advertisements in this magazine and pay in advance of delivery you will be considered for compensation under the Scheme if the advertiser becomes insolvent or ceases to trade provided that:

(a) you have not received the goods, or a refund in respect of returning same, AND:

(b) you write to the Advertisement Manager of this magazine, stating the facts, not earlier than 28 days from the date of the order and NOT LATER THAN THREE MONTHS from the date on which the advertisement appeared.

THE SCHEME ONLY COVERS ADVANCE PAYMENT SENT IN DIRECT RESPONSE TO AN ADVERTISEMENT IN THIS MAGAZINE. IT DOES NOT COVER:—

(a) Classified advertising;

(b) payment made in response to catalogues, brochures, etc. received as a result of responding to such advertisements;

(c) advertisers offering services as opposed to goods;

(d) claims where payment is made with Access or Barclaycard and where the cost of the goods is over £30. In this case claims should be made to the Credit Card Company concerned.

Full details of the Scheme are available by sending a stamped and addressed envelope to Mail Order Protection Scheme, Periodical Publishers Association, Imperial House, Kingsway, London WC2B 6UN.

Sinclair Programs

The easiest way to become computer literate

All the best listings in
Basic, machine code,
Forth and many more
languages plus

- Programming advice
- Language courses
- Software reviews

**EXPAND YOUR MIND AND
YOUR MACHINE**

**SUBSCRIBE TO SINCLAIR
PROGRAMS TODAY**

SUBSCRIPTION FORM

**Mail to: ECC Publications Limited:
196-200 Balls Pond Road, London N1 4AQ**

**Yes — I'd like to subscribe to Sinclair Programs
(12 issues — price £13.20)**

I enclose a cheque for £ _____

Please charge my credit card:

Card name _____ **Number** _____
Name _____ **Address** _____

Signature _____ **Date** _____

N.B. This offer applies to U.K. subscribers only. Overseas rates available on request.

**Second Edition
Just Published**

**THE GOOD
COMPUTING
BOOK FOR
BEGINNERS**

PLUS a complete alphabetical glossary of terms

If you want to know
about computing . . .

THE FACTS DON'T HAVE TO BE BORING!

An entertaining, but **thorough** reference source with the most readable, comprehensive glossary you'll find anywhere. The Good Computing Book for Beginners is an essential A-Z of all the facts you need to know about computing — and none you don't!

Whether you're brand new to computing, or an old hand keen to stay ahead, you'll score by keeping this classic, top-selling book within reach to use again and again.

The author, Dennis Jarrett, is a successful journalist who was also founder editor of *Which Computer?* magazine — so his first edition quickly became a standard work. Now this new, substantially enlarged and revised edition covers the latest trends, terms and technology with the relevant facts — and **ONLY** the relevant facts — in **plain English**.

Here's another fact you'll find fascinating: **it will only cost you £2.95!**

Use the coupon below to get your copy right away — or buy it soon from your bookshop. It's the nonsense book you'll turn to again and again.

Please send me _____ copy(ies) of The Good Computing Book for Beginners by Dennis Jarrett at £2.95 each plus 50p post and packing. I enclose a cheque for _____
account Visa/Access/Diners/Amex number _____
Signature _____ Name _____ Address _____
Send to: _____ (please print clearly)
ECC PUBLICATIONS LIMITED
196-200 Balls Pond Road
Islington
London N1 4AQ

BATTLE

GRID BATTLE is a game for two players, written for the 16K Spectrum by Gary Winstanley, aged 13, of Wigan, Lancs. The object is to calculate your move so that you get within four squares of your opponent. You can then fire at your opponent, providing it is your move, and destroy him. Player 1 moves using the cursor keys and 0 to fire and player 2 uses keys O, P, Q, A and M.

```

LS 1 PAPER 2: INK 7: BORDER 2: C
2 GO SUB 9000
15 LET x=3
17 LET z="BATTLE"
18 FOR v=1 TO LEN z#
19 PRINT AT x,y+10;z#
20 BEEP .01:v
22 NEXT y
25 LET x=x+3
28 IF x>20 THEN GO TO 30
27 CLS
28 GO TO 17
30 PRINT AT 10,5: INVERSE 1;"
DO YOU WANT INSTRUCTIONS?"
35 IF INKEY#="y" THEN GO TO
9900
36 IF INKEY#="n" THEN GO TO
37 IF INKEY#="" THEN GO TO
37
38 GO TO 35
39 INK 7: PAPER 1: BORDER 1: C
LS

```

```

40 LET w=48
45 PLOT w,0: DRAW 0,175
47 LET w=w+8
48 IF w>207 THEN GO TO 50
49 GO TO 45
50 LET x=0
55 PLOT 48,x: DRAW 159,0
56 LET x=x+8
57 IF x>175 THEN GO TO 60
58 GO TO 55
60 PLOT 48,175: DRAW 159,0: DR
AW 0,-175
70 PRINT AT 0,0:"Player"; AT
1,3;"1"; AT 0,26:"Player"; AT 1,
29;"2"
80 PRINT AT 3,3: INK 2;"A"; A
T 3,29: INK 6;"A"
85 LET a=10: LET b=6: LET c=10
: LET d=25
87 LET a#="A": LET b#="A"
88 LET g=1
90 PRINT AT a,b: INK 2;a#
90 PRINT AT c,d: INK 6;b#
110 PRINT AT 10,0:"YOUR"; AT 1
150 PRINT AT 1,0:"GO"
160 IF INKEY#="5" THEN PRINT
AT a,b;" ": LET b=b+1: GO TO 1
90
170 IF INKEY#="8" THEN PRINT
AT a,b;" ": LET b=b+1: GO TO 1
90
175 IF INKEY#="6" THEN PRINT
AT a,b;" ": LET a=a+1: GO TO 1
90
180 IF INKEY#="7" THEN PRINT
AT a,b;" ": LET a=a-1: GO TO 1
90
185 IF INKEY#="0" THEN GO TO
500
189 GO TO 90
190 PRINT AT a,b: INK 2;a# : AT 1
195 PRINT AT 10,0;" ": AT 1,
1,1;" "
200 PRINT AT 10,27:"YOUR"; AT
11,28;"GO"
210 IF INKEY#="o" THEN PRINT
AT c,d;" ": LET d=d-1: GO TO 3
00
220 IF INKEY#="p" THEN PRINT

```

```

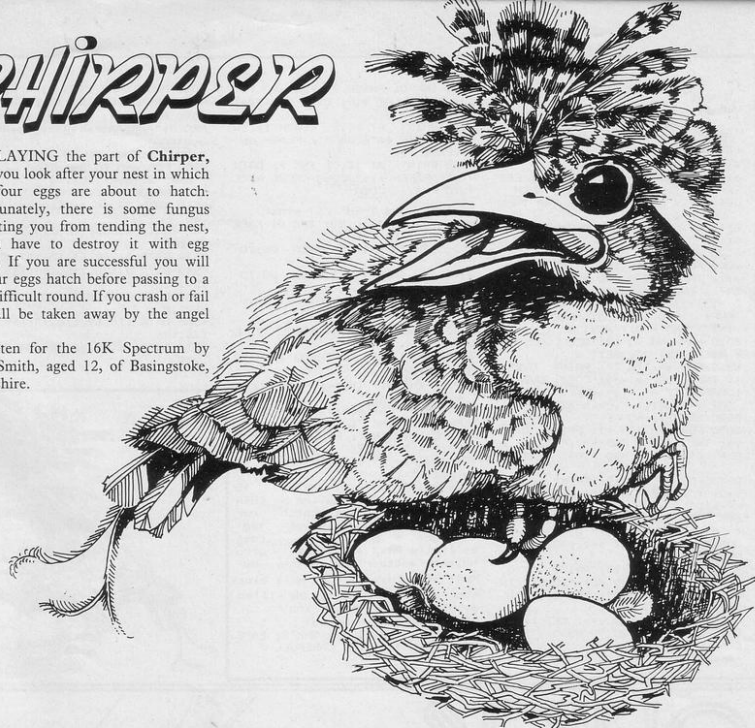
AT c,d;" ": LET d=d+1: GO TO 3
00
230 IF INKEY#="q" THEN PRINT
AT c,d;" ": LET c=c-1: GO TO 3
00
240 IF INKEY#="a" THEN PRINT
AT c,d;" ": LET c=c+1: GO TO 3
00
250 IF INKEY#="m" THEN GO TO
600
260 GO TO 210
300 PRINT AT c,d: INK 6;"A"
310 PRINT AT 10,27;" ": AT
11,28;" "
320 GO TO 90
500 IF c=a+4 OR c=a-4 OR d=b+4
OR d=b-4 THEN PRINT AT c,d;"B"
: GO TO 510
505 IF c >= a+4 OR c >= a-4 OR
d >= b+4 OR d >= b-4 THEN GO TO
510
510 PRINT AT 21,0: FLASH 1;"
BEEP 3,5: PAUSE 100: CLS
520 PRINT AT 10,10:"ANOTHER GA
ME?"
525 IF INKEY#="y" THEN GO TO
39
530 IF INKEY#="n" THEN STOP
532 IF INKEY#="" THEN GO TO
532
535 GO TO 525
600 IF a=c+4 OR a=c-4 OR b=d-4
OR d=b+4 THEN PRINT AT a,b;"B"
: GO TO 610
605 IF a >= c+4 OR a >= c-4 OR
b >= d+4 OR b >= d-4 THEN GO TO
300
610 PRINT AT 21,0: FLASH 1;"
BEEP 3,5: PAUSE 100: CLS
620 GO TO 520
8999 STOP
9010 FOR a=USR "a" TO USR "b"
7: READ user: POKE a,user: NEXT
a: RETURN
9020 DATA 0,0,24,60,60,24,0,0
9030 DATA 0,145,90,124,56,28,118
,129
9900 PAPER 1: BORDER 1: INK 7: C
LS
9910 PRINT AT 0,10: INVERSE 1;"
INSTRUCTIONS"; AT 1,10:"=====
====="
9920 PRINT AT 3,0:" BATTLE is
a game of strategy where you mu
st manoeuvre your ship around
the board avoiding your opponen
ts range of fire. When your op
ponent is four squares away
he can fire at you providing it
is his turn to move"
9930 PRINT AT 15,0:"PLAYER 1 ca
n move one square at a time usin
g 'O'."
9940 PRINT AT 15,0:"PLAYER 2 ca
n move around the board usin
g 'O,P' in their respective
positions and fire using 'M'"
9935 PRINT AT 21,10: FLASH 1;"A
NY KEY: PAUSE 0
9940 GO TO 39

```

CHIRPER

PLAYING the part of **Chirper**, you look after your nest in which four eggs are about to hatch. Unfortunately, there is some fungus preventing you from tending the nest, so you have to destroy it with egg bombs. If you are successful you will see your eggs hatch before passing to a more difficult round. If you crash or fail you will be taken away by the angel bird.

Written for the 16K Spectrum by Toby Smith, aged 12, of Basingstoke, Hampshire.



```

10 LET x=0: LET y=0
20 LET i=3
30 LET s=0
40 LET hs=0
60 LET sk=10
70 GO TO 9000
80 GO SUB 7500
900 REM Set up screen
510 BORDER 5: PAPER 5: INK 7: C
LS
530 PRINT AT 21,0: INK 4: "(32
1g8)"
540 PRINT #1: AT 0,0: INK 4: "(3
2*1g8)"
550 PRINT #1: AT 1,0: INK 4: "(3
2*1g8)"
555 PRINT #1: AT 0,0: INK 0: PA
PER 4: "LIVES=: FOR a=1 TO 1: PR
INT #1: AT 0,6+a: INK 7: PAPER 4
: "A": NEXT a
560 PRINT AT 19,27: INK 7: "000
0": AT 19,27: OVER 1: INK 0: "4
1": AT 19,27: OVER 1: (g5:1g5:g5
:1g5)"
570 PRINT AT 20,27: PAPER 5: I
NK 0: "(g7:2*1g8:1g4)"
580 BEEP .5,14: BEEP .5,11: BEE
P .8,11: PAUSE 4: BEEP .5,12: BEE
P .5,9: BEEP .8,9: PAUSE 4: BEE
P .5,7: BEEP .5,9: BEEP .5,11: B
EEP .5,12: BEEP .5,14: BEEP .5,1
4: BEEP .4,7
1000 REM MAIN loop
1010 BEEP .002,0: PRINT AT x,y:
INK 2: "CDE"
1020 GO SUB 2000
1030 IF INT ( RND *10) >= 3 THE
N GO SUB 3000

```

```

1040 IF ATTR (x,y+4) <> 47 THEN
GO TO 8000
1050 LET y=y+1: IF y=27 THEN PR
INT AT x,y-1: " ": LET x=x+1:
LET y=0
1060 IF x=18 AND y=26 THEN GO T
O 6000
1070 PRINT #1: AT 0,15: PAPER 4:
INK 1: "SCORE=:": GO TO 1000
2000 IF INKEY$="" THEN RETURN
2005 LET b=y
2010 FOR a=x TO 19
2020 BEEP .02,a: PRINT AT a+1,b
+2: INK 7: "A"
2030 PRINT AT a,b+2: INK 7: " "
2040 PRINT AT x,y: INK 2: "CDE"
: IF y=27 THEN PRINT AT x,y: "
": LET x=x+1: LET y=0:
2045 IF x=18 AND y=26 THEN GO T
O 6000
2050 IF ATTR (x,y+4) <> 47 THEN
GO TO 8000
2060 IF ATTR (a+2,b+2) <> 47 TH
EN PRINT AT a+2,b+2: INK 1: FL
ASH 1: "E": BEEP .005,-10: LET s=
s+1
2070 LET y=y+1
2080 NEXT a
2090 LET s=s-1: LET y=y-1: RETUR
N
3000 FOR a=4 TO INT ( RND *24+4
) STEP INT ( RND *4+3)
3010 IF ATTR (21,a) <> 169 AND
ATTR (20,a) <> 41 THEN FOR d=2
0 TO x+1 INT ( RND *7+6) STEP -1
: BEEP .0004,30: PRINT AT d,a:
INK 1: "B": NEXT d

```

```

3015 NEXT a
3020 RETURN
6000 IF ATTR (20,27) <> 40 DR
ATTR (20,28) <> 40 THEN BEEP .3
,-30: BEEP .05,25: BEEP .005,20:
PRINT AT 2,5: FLASH 1: INK 6:
PAPER 0: "You (1B:1:1E:1:1:1:1
1E) your nest.": PRINT AT 15,0:
INK 2: PAPER 6: "ACDEPress any k
ey to restartCDEA": LET x=0: LET
y=x: PAUSE 20: PAUSE 0: LET i=1
-1: GO TO 500
6010 PRINT AT 18,23: INK 1: "CDE
": INK 6: "AAAA"
6050 BEEP .5,14: BEEP .5,11: BEE
P .8,11: PAUSE 4: BEEP .5,12: BEE
P .5,9: BEEP .8,9: PAUSE 4: BEE
P .5,7: BEEP .5,9: BEEP .5,11: B
EEP .5,12: BEEP .5,14: BEEP .5,1
4: BEEP .6,14: PAUSE 4
6060 BEEP .5,14: BEEP .5,11: BEE
P .8,11: PAUSE 4: BEEP .5,12: BEE
P .5,9: BEEP .8,9: PAUSE 4: BEE
P .5,7: BEEP .5,11: BEEP .5,14:
BEEP .5,14: BEEP .8,7
6070 FOR a=27 TO 30: PRINT AT 1
8,a: INK 3: "B": BEEP .8,20: NEXT
a
6080 BEEP .4,2: BEEP .4,11: BEEP
.4,2: BEEP .4,11: BEEP .4,2: BEE
P .1,11: PAUSE 3: BEEP .2,11: BEE
P .2,11: BEEP .2,11: BEEP .2,11
: BEEP .5,9: BEEP .5,9: BEEP .9,
7
6090 FOR a=18 TO 2 STEP -1: LET
s=s+5: PRINT #1: AT 0,15: FLASH
1: INK 2: PAPER 6: "SCORE=:": BE
EP .5,50: PRINT AT a,27: OVER 0

```

```

1000 PRINT AT a,27; OVER 1;
INK 1; "": PRINT AT a,27; O
VER 1; INK 1; "]]]]"; AT a,27; O
VER 1; "[[[["; AT a-1,27; OVER 0;
"DDDD"; AT a+1,27; OVER 0; "":
AT a-2,27; OVER 0; "GGGG"; NEXT
a
6100 LET sk=sk-1; LET l=1+1; LET
x=0; LET y=x; IF sk <= 2 THEN
LET sk=2; LET l=1-1; IF l=0 THEN
LET l=1
6110 IF INKEY#="" THEN GO TO
6110
6120 GO TO 500
8000 FOR a=0 TO 10: PRINT AT x,
y+1; INK INT ( RND *7); PAPER
INT ( RND *7); OVER 1; CHR# ( RND
*131+33); CHR# ( RND *131+33);
CHR# ( RND *131+33); BEEP .02,-
INT ( RND *30); NEXT a
8010 FOR a=0 TO 10: BEEP .05,-30
: BEEP .05,-20; NEXT a
8015 FOR a=x TO 20: PRINT OVER
1; INK 2; AT a,y+1; "CDE"; OVER 1
; PAPER 6; AT a,y+1; "///"; PRINT
AT a-1,y+1; "": NEXT a
8020 BEEP 2,-40
8030 FOR a=0 TO y+1: PRINT AT 0,
a; INK INT ( RND *4); "CDE"; B
EEP .01, INT ( RND *50); NEXT a
8040 FOR a=1 TO 19: PRINT AT a,
y+2; "I"; BEEP .08,10; NEXT a; B
EEP 1,0
8050 FOR a=20 TO 1 STEP -1: PRIN
T AT a,y+1; INK 7; "A"; BEEP .
009,20; PRINT AT a+1,y+2; "":
NEXT a
8060 FOR a=y TO 27: PRINT AT 0,
a; INK INT ( RND *5); "CDE"; IN
K 7; AT 1,a+2; "A"; BEEP .1,20;
NEXT a
8070 LET x=0; LET y=x; LET l=1-1
: IF l=0 THEN GO TO 8500
8080 GO TO 500

```

```

8500 INK 0; PAPER 7; FOR a=0 TO
20: PRINT AT a,0; OVER 1; "(32*
aB)"; NEXT a
8560 PRINT AT 10,5; FLASH 1; IN
K 0; PAPER 6; "SCORE="; FLASH 0;
INVERSE 1;s
8580 PRINT AT 13,0; INK 7; BRIG
HT 1; PAPER 1; "ACDE" PRESS A KE
Y TO PLAY "CDEA"
8590 IF s>hs THEN LET s=hs
8600 PRINT AT 0,20; INK 0; PAPER
6; "HI=";hs
8700 IF INKEY#="" THEN GO TO
8700
8710 IF INKEY#="" THEN GO TO
8700
8720 LET s=0; LET x=0; LET y=x;
LET sk=8; GO TO 500
9000 INK 0; PAPER 2; BORDER 2; C
LS
9010 PRINT INK 6; FLASH 1; AT 0,
0; "(32*ig5)"
9020 PRINT #1; INK 6; FLASH 1; A
T 1,0; "(32*ig5)"
9030 PRINT AT 4,8; INK 1; "CDE "
; FLASH 1; INK 7; BRIGHT 1; "(IC
H(I)R(I)P(E)I(R)"; FLASH 0; INK 1
; BRIGHT 0; "CDE"
9040 PRINT AT 6,9; INK 0; "By To
by Smith"
9050 PRINT AT 8,0; INK 6; "Yo
u are a bird 'CDE'called CHIR
PER you are about to hatch your
chicks when suddenly you see
a fungus 'B' poke his rott
en little head above the groun
d then another and another you
MUST stop them or they will block
your path and you will be killed
by his deadly poison. You -
only have 3 chances so"
9060 PRINT AT 19,7; INK 2; PAPER
6; BRIGHT 1; "BE CAREFULL "

```

```

9080 PRINT AT 21,3; INK 0; PAPER
5; "PRESS ANY KEY TO EGGBOM"
9090 PRINT #1; AT 0,0; INK 7; PAPER
5; "AAAAApressAnyKeyAt0p1
ayAAAAA"
9100 PAUSE 0: GO TO 80
9500 FOR q=0 TO 55: READ w: POKE
USR "a"+q,w; NEXT q
9505 RETURN
9510 DATA 24,60,44,110,110,94,94
,60
9520 DATA 63,63,110,220,220,220,
126,63
9530 DATA 0,248,63,15,127,63,3,0
9540 DATA 0,126,255,190,185,167,
159,126
9550 DATA 48,120,206,223,254,248
,192,0
9560 DATA 170,69,176,13,169,189,
126,126
9570 DATA 16,40,124,84,56,56,124
,254

```



QUICK

DRAW

QUICK DRAW can READ DATA from REM lines so that the machine code takes the data from the Basic. If you look at the listing you will see that PLOT is used to move the drawing position, as on the Spectrum. A USR line follows and then a REM DATA line. The data in that line represents co-ordinates and not pixel displacements.

If the draw data is a variable you will

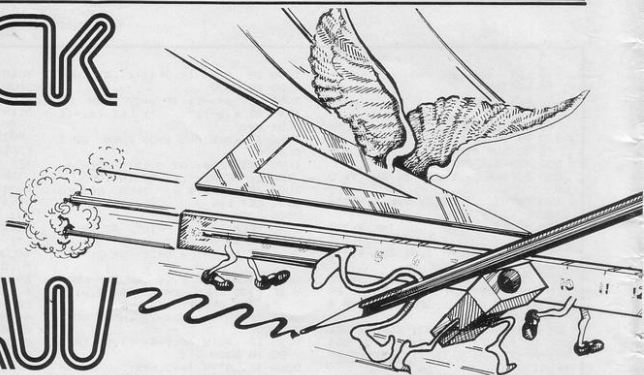
be unable to use a REM line and must use POKE statements. The program was written for new ROM machines but has a few lines added which make it compatible with the Mk 1 ROM.

Care should be taken when typing-in lines 1 to 25. After the program has been ENTERED it should be SAVED twice before being RUN. If the demonstration program works you can then delete the whole listing, starting with

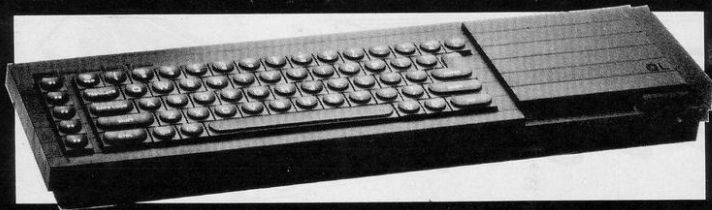
the bottom lines, apart from lines 1 and 2. Removing line 2 will cause the program to crash.

The program gives three demonstrations using the drawing routine and after deleting the lines specified more enthusiastic readers can add their own drawing program.

Quick Draw was written for the 16K ZX-81 by Barry Nicholson of Hebburn, Tyne and Wear.



Calling all SPECTRUM OWNERS how would
you like to own, ABSOLUTELY FREE a new
SINCLAIR QL COMPUTER!



dktronics offer you this unique chance
Plus FREE MEMBERSHIP
to the **dktronics** SPECTRUM OWNERS CLUB!
And the opportunity to win
one of four great prizes!

1st THE NEW SINCLAIR QL
2nd £100 CASH!
3rd £50 CASH!
4th £25 CASH!

Complete the coupon and send it to us and by return you will receive your
FREE MEMBERSHIP CARD. Don't delay post today!

I would like to become a member of the **dktronics** SPECTRUM OWNERS
CLUB plus the chance to enter the FREE DRAW.*

*(Free Draw for QL Computer plus other prizes to be held on August 1st 1984).

NAME: _____

ADDRESS: _____

POST CODE: _____

TELEPHONE NUMBER _____

AGE _____

MY SINCLAIR SPECTRUM SERIAL NUMBER IS: _____



dktronics

DK Tronics Ltd., Unit 6, Shire Hill Industrial Estate, Saffron Walden,
Essex CB11 3AQ. Telephone: (0799) 26350 (24 hrs) 5 lines

The Spectrum Connection

ONLY ACES SURVIVE IN ...

NIGHT GUNNER

48K SPECTRUM
BY R.J. SWIFT

JOYSTICK COMPATIBLE
(Kempston, AGF, Sinclair,
Protek and Others)

£6.95

- THE AMAZING
AIR BATTLE
SCENARIO THAT
STRETCHES YOU
TO THE VERY LIMIT -
GUNS BLAZING, ENEMY
FIGHTERS ATTACK FROM
ALL DIRECTIONS - 3D
AND THERE'S STILL THE
GROUND ATTACK SORTIES

OTHER AMAZING FEATURES
* 3D GROUND ATTACK MISSIONS
* REALISTIC 3D EFFECTS
* EXPLOSIVE SOUND
* 1 OR 2 PLAYERS EACH
WITH 4 LEVELS OF DIFFICULTY
* HIGH SCORE TABLE
* WITH MEDIA DEMONSTRATING
* TITLE PAGE

TAXI
£5.50
Any Spectrum



Become a Taxi Driver
and test your skills
behind the
Reckless Driver!



FOOTBALL
£7.95
48K Spectrum

League Analysis -
Easy to use Pools
Prediction.
With 9 methods of
team performance
analysis - let your
Spectrum guide you to
your pools selection.



FIGHTER
PILOT
£7.95 48K Spectrum

A spectacular flight simulation of the world's
most exciting jet fighter with stunning 3-D
cockpit view and the most realistic air to air
combat ever seen on the spectrum!

Please send me the
following games for
the Spectrum

Night Gunner 48K ☐ £6.95
Fighter Pilot 48K ☐ £7.95
Football 48K ☐ £7.95
Taxi (Any Spectrum) ☐ £5.50

VAT and p. & p. inclusive within UK
(Overseas inc. 55p. per cassette)
**Trade and Export enquiries
welcome.**

Please send to Digital Integration, Dept SP7
Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ

Selected products
available from:

Boots, Woolworths, H.M.V.,
Menzies, W.H. Smith, Greens,
Lasky's, Rumbelows,
Currys, Selfridges,
Spectrum Dealers,
Video Palace, Zappo,
and all good
Computer shops.

**DIGITAL
INTEGRATION**
Watchmoor Trade Centre
Watchmoor Road,
Camberley, Surrey GU15 3AJ

Lifetime Guarantee Cheques payable to Digital Integration
I enclose a cheque/P.O. for _____ Total.
Name _____
Address _____

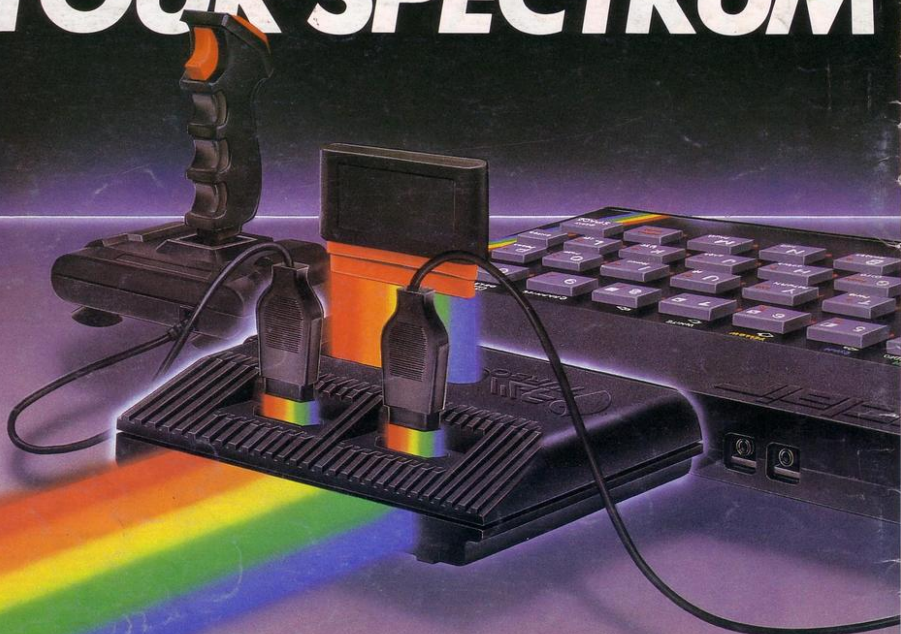
Or debit my Access ☐ Account No. _____

Tele Sales Camberley (0276) 684959



WIZARDS OF
COMPUTER GAMES
SOFTWARE

TURBO CHARGE YOUR SPECTRUM



Outperforms any Spectrum interface

The unique Turbo interface from Ram gives you all these features – and more – in one unit:

- * A variety of interfaces including: Rom cartridges, two 9-way D plugs for standard joysticks, PLUS full expansion bus at rear.
- * Compatible with Kempston and Protek protocols.
- * Works with latest Quickshot Mk II auto rapid-fire joysticks!
- * Choice of Rom cartridge or tape cassette software.
- * Instant program loading with cartridge software.
- * Built-in power safety device – unique to Ram Turbo.
- * Full one year guarantee.
- * Immediate availability – 24 Hr despatch on receipt of P.O./ credit card details (cheques – seven days).
- * Incredible value – only £22.95.

So don't wait around – simply complete the coupon and send it to us today.

Or call our credit card hot line on 02514 25252. (Access and Visa welcome).

Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 8PA.

Please send me:

____ Spectrum Turbo Interface(s) at £22.95
+ £1 p+p (overseas orders £3 p+p)

____ Quickshot II Joystick(s) at £9.95

(Only when purchased with Turbo – normally £12.95 + £1 p+p)

I enclose cheque/postal order or charge my Access/Visa for: £



Name _____

Address _____

Tel _____

SP 7

To: Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 8PA.

24 Hr
despatch for
credit cards and
postal orders



Trade and export enquiries welcome.